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National Roadway Traffic Noise Exposure Model (NRTNEM) Programmer's Manual

Wyle Labs.
El Segundo, CA

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NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL (NRTNEM)

- PROGRAMMER'S MANUAL -

JANUARY 1932

OFFICE OF NOISE ABATEMENT AND CONTROL
U. S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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15. Supplementary Notes

A description of the NRTNEM and its data bases is presented in a separate report (available from EPA/ONAC). This report, as well as the "User's Manual" (EPA 550/9-82-201-A) and a computer tape of the NRTNEM programs and data bases are available from NTIS.

16. Abstract (Limit: 200 words)

The National Roadway Traffice Noise Exposure Model (NRTNEM) is comprised of a collection of on-line datasets, some containing programs and others containing data. This manual describes the NRTNEM system as it existed on the NCC (EPA's National Computer Center) in December 1981, under user ID EPADYN.

NRTNEM actually consists of two models: The General Adverse Response Model ("GAR"), and the Single Event Model ("SEM"). Only one of them can be executed by a job at a time. The User's Manual describes job submission procedures. This manual describes the NRTNEM system in more detail so as to facilitate program maintenance. This manual is organized from two points of view: present first those items the user first comes into contact with, and go from the general to the specific. Accordingly, the general properties of files and datasets are described first, and the coding details are last.

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Traffic Noise Exposure
Roadway Traffic Conditions
Programmer's Manual
Population Distribution
Vehicle Operating Characteristics
Noise Exposure Simulation

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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FOREWORD

The reader should be familiar with the NRTNEM User's Manual and is assumed to be a fairly experienced FORTRAN programmer familiar with IBM's TSO (Time Sharing Option for models 360/370) and the WYLBUR conversational system. In addition, he should have a working knowledge of procedures and conventions at EPA's National Computer Center (NCC). In particular, he should have the following publications available:

- National Computer Center - IBM System, "NCC - IBM WYLBUR Guide"
- U.S. Environmental Protection Agency, "NCC - IBM User's Guide"
- IBM, "OS/VS2 TSO Command Language Reference," GC28-0646-4.
- IBM, "OS/VS2 TSO Terminal User's Guide," GC28-0645-4.
- IBM, "IBM System/360 and System/370 FORTRAN IV Language," GC28-6515-10.
- Ashbrook, J.D. and Sande, G., "A User's Guide to the Integrated Plotting Package," National Institute of Health, U.S. Department of Health, Education and Welfare, March 1975.
- IBM, "OS/VS2 MVS Job Control Language," GC28-0692-4.

The National Roadway Traffic Noise Exposure Model is described in the form in which it existed in NCC files on August, 1981.

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1. INTRODUCTION

The National Roadway Traffic Noise Exposure Model (NRTNEM) exists in the computer as a collection of on-line datasets, some containing programs and others containing data. A full list of these datasets is provided in Table 1-1. This is the minimum required. As a user works with NRTNEM, he will undoubtedly establish other datasets which are derived from this minimum collection. This manual describes the system as it existed in NCC (EPA's National Computer Center) on August, 1981, in user id EPADYN.

NRTNEM actually consists of two models: The General Adverse Response Model ("GAR"), and the Single Event Model ("SEM"). Only one of them can be executed by a job at a time. The User's Manual describes job submission procedures. This manual describes the NRTNEM system in more detail so as to facilitate program maintenance. This manual is organized from two points of view: present first those items the user first comes into contact with, and go from the general to the specific. Accbrdingly, the general properties of files and datasets are described first, and the coding details are last.

Table 1-1

NRTNEM Computer Files

Fully Qualified Dataset Name	Characteristics							Description
	(1)	WYLBUR Format	Volume	Tracks	Record Format	Logical Record Length	Block Size	
CN.EPADYN.S2KC.TRAWO	P	CARD	USER75	190	FB	80	3120	FORTRAN source code for GAR and SEM. Each source module constitutes a member of TRAWO.
CN.EPADYN.S2KC.BUILD	P	(not applicable)	USER68	190	FB	80	80	Object module library. Each object module constitutes a member of BUILD.
CN.EPADYN.S2KC.FRRXC	S	CARD	USER75	1	FB	80	3120	Contains JCL (including a PROC) for compiling members of TRAWO and storing them into BUILD.
CN.EPADYN.S2KC.RNMEXE9R	S	TSO	USER65	1	FB	80	3120	Contains JCL and some input data for running either GAR or SEM. This dataset is edited by $RNMSUF.
CN.EPADYN.S2KC.$RNMSUF.CLIST	S	(not accessible)	USER67	1	VB	255	4240	TSO command procedure file executed by the user in the TSO conversational environment. Edits RNMEXE9R and submits result as a job to be run.
CN.EPADYN.S2KC.WYLIB(FIMP)	M	EDIT	USER69	267	FB	80	3120	Contains fractional impact information for SEM only.
CN.EPADYN.S2KC.WYLIB(FLOMIX08)	M	EDIT						Contains traffic flow and mix data.
CN.EPADYN.S2KC.WYLIB(MILE)	M	EDIT						Contains highway mileages.
CN.EPADYN.S2KC.WYLIB(PERCNT)	M	EDIT						Contains Traffic Percentages by vehicle type.
CN.EPADYN.S2KC.WYLIB(SIGMA0)	M	EDIT						Contains standard deviations of vehicular noise levels.
CN.EPADYN.S2KC.NLDICT	S	CARD	USER76	3	FB	80	3120	Contains a menu of noise levels organized by vehicle type and amount of noise reduction.
CN.EPAxxx.aaaa.WYLIB(yyyyyy)(2)	M	EDIT						Contains vehicle population and growth data. Resides in the user's WYLIB. May be a copy of CN.EPADYN.S2KC.WYLIB(VGFS001).
CN.EPADYN.S2KC.WYLIB(VGFS001)	M	EDIT						Contains master vehicle population and growth data.
CN.EPAxxx.aaaa.zzzzzz(2)	S	CARD						Contains Regulation Instructions (often referred to as RIF).

(1) P = Partitioned Dataset
S = Sequential Dataset
M = Member of a Partitioned Dataset

(2) EPAxxx = user's identification
aaaa = user's account
yyyyyy = user-assigned name for vehicle growth data
zzzzz = user-assigned name for regulation instructions

2. SUPPORT SYSTEM

Files RNMEXE9R and $RNMSUF.CLIST are considered the support system. RNMEXE9R contains Job Control Language (JCL) statements and data for running both the GAR and SEM. $RNMSUF.CLIST is a TSO command file (invoked by the EXEC command in TSO) which edits RNMEXE9R according to user interaction while $RNMSUF.CLIST is executing and thus produces a stream of lines which is automatically submitted as a batch job. During this editing, lines not needed for one or the other model are deleted, character strings are modified, and symbols (preceded by a # sign in RNMEXE9R) are replaced by values to be used in this job.

Figure 2-1 shows RNMEXE9R. The following discusses it line by line. RNMEXE9R is also explained in Appendix B of the User's Manual so that the following text concentrates on programming aspects leaving out details available in the User's Manual. Figure 2-2 shows $RNMSUF.CLIST; its execution's effects on RNMEXE9R are described together with that file starting on page 2-7.

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```
//#SYSUID JOB (#ACCT,WYLE,,25,,,#COPY,,),#MANNAME,
//        TIME=(#TIME,0),NOTIFY=#SYSUID,PRTY=#PRTY
/*ROUTE  PRINT HOLD
//* THIS IS FILE RNMEXE9R (1980 SEP 23)
//*       TO BE EDITED BY $RNMSUF.CLIST
//LKED     EXEC PGM=IEWL,REGION=192K
//SYSPRINT DD  SYSOUT=A
//SYSLMOD  DD  DSN=&&LOD(VS9R),DISP=(,PASS),UNIT=SYSDA,
//             SPACE=(CYL,(2,1,2),RLSE),DCB=BUFNO=1
//SYSUT1   DD  UNIT=SYSDA,SPACE=(1024,(120,120),,,ROUND),
//             DCB=BUFNO=1
//SYSLIB   DD  DSN=SYS1.FORTLIB,DISP=SHR
//RNMOLIB  DD  DSN=CN.EPADYN.S2KC.BUILD,DISP=SHR
//SYSLIN   DD  *
 INCLUDE RNMOLIB(#MAINP,#BKD)
 INCLUDE RNMOLIB(SERESC,ZERO,
              ADD,CONST,DBLEV,FACTOR,FIX,HEADER,IYBAS,IYES,
              IYREF,PRINT1,PRINT2,PRINT3,PRINT4,PRINT5,PRINT6,
              PRINT7,PRINT8,PRINT9,PRNT10,PRNT11,RAD,UPDATE,VBD,
              VEHPOP,XMINUS,
              COLECT,DBBAND,DUMPER,EVENTS,EVNTDB,FIXSEM,HEADG,
              HEADRSEM,HEADV,IYBASSEM,IYESSEM,IYREFSEM,NORMAL,
              PRT1SEM,PRT10SEM,PRT11SEM,PRT2SEM,PRT3SEM,PRT4SEM,
              PRT5SEM,TABLE,TIMSTR8S,UPDATSEM,VBDSEM,VEPOPSEM,
              ZERO1)
//AUSF  EXEC  PGM=LOADER,PARM='EP=MAIN,TERM',REGION=#REGN
//SYSLIN DD DSN=*.LKED.SYSLMOD,DISP=(OLD,DELETE,DELETE)
//SYSLOUT DD SYSOUT=A
//SYSTERM DD SYSOUT=A
//FT05F001 DD DSN=#SYSPREF.WYLIB(#REGSCN1),DISP=SHR
//FT06F001 DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3155)
//FT01F001 DD DSNAME=&PLINF,DISP=(NEW,PASS),SPACE=(3120,(40,40)),
//            UNIT=SYSDA,DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)
//FT02F001 DD DSN=#SYSPREF.#FILU2,DISP=SHR
//FT08F001 DD DSN=CN.EPADYN.S2KC.NLDICT,DISP=SHR
//FT03F001 DD DSN=CN.EPADYN.S2KC.WYLIB(MILE),DISP=SHR
//          DD DSN=CN.EPADYN.S2KC.WYLIB(PERCNT),DISP=SHR
//          DD DSN=CN.EPADYN.S2KC.WYLIB(FIMP),DISP=SHR
//          DD DSN=CN.EPADYN.S2KC.WYLIB(FLOMIX08),DISP=SHR
//FT04F001 DD *
IPLOT     :2222222
IPRINT    :111100000000
IDUMP     :000000000000
KMASK     :111111
IVMASK    :00000000000000
ICONT     :000000000000
JMASK     :111111111
METMSK    :1111001
MODMSK    :111
IBEG      :5575005
VBD74-1   :0.4673 0.1420 0.0167 0.0618 0.1603 0.1514 0.0005
VBD74-2   :0.6146 0.3854 1.0000 1.0000 1.0000 0.8800 0.1200
VBD77     :0.4390 0.1324 0.0176 0.0600 0.1400 0.2100 0.0010
VBD85     :0.0700 0.1853 0.0247 0.2300 0.1500 0.1300 0.2100

NYRN      :09
MYRNET-1  :1974,1979,1984,1989,1994,1999,2004,2009,2013,1983,      *
RNAME     :*#RUNNAME:#DATE*                                      *
    :  1.0000E+00 1.4610E+00 2.1345E+00 3.1185E+00 4.5562E+00 6.6565E+00
    :  3.3866E+01 9.6682E+01 2.7601E+02 7.8798E+02 2.2496E+03 6.4222E+03
```

Figure 2-1. JCL File RNMEXE9R

```
 1.8335E+04 5.2345E+04 1.4943E+05 4.2660E+05 1.2179E+06 3.4764E+0600014726
 1.0000E+00 1.6419E+00 2.6957E+00 4.4260E+00 7.2669E+00 3.2152E+0100014728
 8.2766E+01 2.1307E+02 5.4851E+02 1.4120E+03 3.6350E+03 9.3576E+0300014730
 2.4089E+04 6.2014E+04 1.5964E+05 4.1097E+05 1.0580E+06 2.7235E+0600014732
 1.0000E+00 2.1009E+00 4.4139E+00 9.2732E+00 1.9482E+01 4.0931E+0100014734
 8.5992E+01 1.8066E+02 3.7950E+02 7.9743E+02 1.6753E+03 3.5197E+0300014736
 7.3947E+03 1.5536E+04 3.2634E+04 6.8573E+04 1.4407E+05 3.0267E+0500014738
 1.0000E+00 1.3300E+00 1.7690E+00 2.3528E+00 3.1293E+00 4.1621E+0000014740
 6.3150E+00 1.0935E+01 1.8932E+01 3.2777E+01 5.6748E+01 9.8250E+0100014742
 1.7010E+02 2.9450E+02 5.0988E+02 8.8278E+02 1.5284E+03 2.6461E+0300014744
 1.0000E+00 1.4142E+00 2.0000E+00 2.8284E+00 4.0000E+00 6.7225E+0000014746
 1.1298E+01 1.8986E+01 3.1912E+01 5.3633E+01 9.0137E+01 1.5149E+0200014748
 2.5460E+02 4.2780E+02 7.1911E+02 1.2086E+03 2.0312E+03 3.4137E+0300014750
 1.0000E+00 1.5704E+00 2.4662E+00 3.8730E+00 6.0822E+00 9.5516E+0000014752
 1.5000E+01 2.3556E+01 3.6993E+01 5.8095E+01 9.1233E+01 1.4327E+0200014754
 2.2500E+02 3.5335E+02 5.5490E+02 8.7143E+02 1.3685E+03 2.1491E+0300014756
                                                                    00014800
                                                                    00014900
*********************************************************************** 00015000
*                                                                     * 00015100
*       ENVIRONMENTAL PROTECTION AGENCY OF THE UNITED STATES          * 00015200
*             OFFICE OF NOISE ABATEMENT AND CONTROL                   * 00015300
*                                                                     * 00015400
*          NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL              * 00015500
*                    SINGLE EVENT MODEL                               * 00015600
*                                                                     * 00015700
*                                                                     * 00015800
*                                                                     * 00016100
*                                                                     * 00016300
*********************************************************************** 00016400
*                                                                     * 00016500
*                    DATE OF RUN : #DATE                              * 00016600
*               NAME OF PROGRAMMER : #MANNAME                         * 00016650
*                    NAME OF RUN : #RUNNAME                           * 00016700
*                   NAME OF PLOT : #PLOTNAME                          * 00016750
*     REGULATION INSTRUCTION FILE : #SYSPREF,#FILE2                   * 00016760
*             NAME OF DATAFILE 3 : CN.EPADYN.S2KC.MYLIB(MILE)         * 00016800
*                                : CN.EPADYN.S2KC.MYLIB(PERCNT)       * 00016810
*                                : CN.EPADYN.S2KC.MYLIB(FIMP)         * 00016820
*                                : CN.EPADYN.S2KC.MYLIB(FLOMIX08)     * 00016830
*      VEHICLE GROWTH FACTOR FILE : #SYSPREF,MYLIB(#REGSCN1)          * 00016850
*                                                                     * 00017100
*********************************************************************** 00017200
*                            COMMENTS                                 * 00017300
*                                                                     * 00017400
*                                                                     * 00017500
*                                                                     * 00017600
*                                                                     * 00017700
*                                                                     * 00017800
*                                                                     * 00017900
*                                                                     * 00018000
*                                                                     * 00018100
*********************************************************************** 00018200
//PLKED EXEC PGM=IEAL,REGION=150K                                       00018310
//SYSLIB DD DSN=SYS1.FTM2LIB,DISP=SHR                                   00018320
//        DD DSN=SYS1.FORTLIB,DISP=SHR                                  00018321
//        DD DSN=SYS2.IPP.LOAD,DISP=SHR                                 00018322
//SYSPRINT DD SYSOUT=A                                                  00018330
//SYSLMOD  DD  DSN=&GOSET(MAIN),DISP=(,PASS),UNIT=SYSDA,                00018340
//         SPACE=(TRK,(10,10,1),RLSE)                                   00018350
//SYSUT1   DD  UNIT=SYSDA,SPACE=(TRK,(10,10),RLSE)                      00018360
```

Figure 2-1 (Continued)

```
//PLLIB  DD  DSN=SYS2.IPP.LOAD,DISP=SHR                                  00018370
//RNMOLIB DD DSN=CN.EPADYN.S2KC.BUILD,DISP=SHR                          00018380
//SYSLIN   DD *                                                         00018400
 INCLUDE PLLIB(PPPBUF,PPPBIT,PPPSPC)                                    00018405
 INCLUDE RNMOLIB(RNMPLOT,LOWLIM,UPPLIM)                                 00018410
 INCLUDE RNMOLIB(PLOTTER,SUBPLT)                                        00018415
/*                                                                      00018430
//PLOGO EXEC PGM=*.PLKED.SYSLMOD,COND=(4,LT,LKED),REGION=150K           00018440
//FT01F001 DD DDNAME=SYSIN,DCB=BLKSIZE=80                               00018445
//FT02F001 DD DSN=&IPPTAPE,UNIT=SYSDA,SPACE=(CYL,(2,2),RLSE),           00018450
//     DCB=(RECFM=VSB,LRECL=516,BLKSIZE=3156),DISP=(NEW,PASS,DELETE)    00018460
//FT05F001  DD  DSN=&PLINF,DISP=(OLD,DELETE)                            00018470
//FT06F001  DD  SYSOUT=A                                                00018480
//FT15F001  DD  SYSOUT=A                                                00018490
//PRPLOT EXEC PGM=PRINTER,COND=(8,LE),REGION=100K                       00018500
//STEPLIB DD DSN=SYS2.IPP.LOAD,DISP=SHR                                 00018510
//FT01F001 DD DDNAME=SYSIN,DCB=BLKSIZE=80                               00018515
//FT02F001 DD DSN=&IPPTAPE,DISP=(OLD,DELETE,DELETE)                     00018520
//FT06F001 DD SYSOUT=A                                                  00018530
//FT15F001 DD  SYSOUT=A                                                 00018540
```

Figure 2-1 (Concluded)

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```
00010000 /*  NATIONAL ROADWAY NOISE MODEL - COMBINED JOB SUBMISSION PROCEDURE*/
00010010 /* THIS IS FILE $RNMSUF.CLIST  AS OF  1980 SEP 18 */
00010100     WRITE >>>>>NATIONAL ROADWAY NOISE MODEL VERSION 9R &SYSDATE &SYSTIME
00010200     CONTROL END(ENDE)
00010210     EDIT 'CN.EPADYN.S2KC.RNMEXE9R'
00010300S1:  WRITENR S1, VERSION(SEM OR GAR)   ?
00010400     READ VERSION
00010410     IF '&VERSION' = '' THEN SET VERSION=SEM
00010500     IF &VERSION=GAR THEN DO
00010600                           C 9975 '$MAINP' 'VARNZT9R'
00010650                           C '$BKD' 'BLKDTA'
00010655                            C 9987 'PRINT6, ' 'PRT6V9R,'
00010660                           DEL 9991 9994
00010665                           DEL 18415
00010720                           C 10000 '$REGN' '300K'
00010800                          C 13100 16620 /FIMP/SIGMA0/
00010900                          DEL 13820 13840
00011100                          DEL 14722 14756
00011200                          C 15600 /SINGLE EVENT/GENERAL ADVERSE RESPONSE/
00011210                          C 13700 /0000000000000000/1111111111111111/
00011220                          C 13800 /0000/0001/
00011250                          C 13400 /00000000/11111111/
00011500                          ENDE
00011510     IF &VERSION=SEM THEN DO
00011515                          C 9975 '$MAINP' 'SEMAIN9R'
00011517                          C '$BKD' '$KDSEM88'
00011520                          C 10000 /TERM/TERM,SIZE=400K/
00011521                          C 10000 /$REGN/700K/
00011530                           DEL 9986 9989
00011532                      C 9985 ',ZERO,  ' 'SE,ZERO,'
00011535                           DEL 18410
00011540                          ENDE
00011800S3:  WRITE S3, ENTER EDITING COMMANDS.
00011900S4:  WRITENR ?
00012000     READ
00012100     READDVAL COMMAND
00012120     VERIFY ON
00012200     IF '&COMMAND'='' THEN GOTO S45
00012300     &SYSDVAL
00012400     GOTO S4
00012420S45: WRITENR S4.5 REGULATION INSTRUCTION FILE:
00012424      READ INSTRF
00012428     VERIFY OFF
00012432      IF '&INSTRF'='' THEN GOTO S45
00012500S5:  WRITENR S5, ENTER VEH,GRDNTH F, FILE    ?
00012600     READ VGF
00012700S6:  WRITENR S6, ENTER NET-YEARS(MAX 9):
00012800     READ NETYEAR
00012900     SET NYRN=(&LENGTH(&NETYEAR)+1)/5
00013000     SET NYRN=&STR(0&NYRN)
00013100S7:  WRITE S7, ENTER -PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-,
00013150     WRITE LIMITS :  -XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-,
00013160     WRITENR      ?
00013200     READ MANNAME RUNNAME TIME PRTY JOBID COPY ROOM PLOT
00013400 /* SET DEFAULTS */
00013500     IF '&RUNNAME'  = '' THEN SET RUNNAME=RNMRUN
00013600     IF '&PRTY'     = '' THEN SET PRTY=2
00013700     IF '&COPY'     = '' THEN SET COPY=1
00013800     IF '&MANNAME'  = '' THEN SET MANNAME=&SYSUID
00013900     IF '&TIME'     = '' && &VERSION=SEM THEN SET TIME=20
00014000     IF '&TIME'     = '' && &VERSION=GAR THEN SET TIME=10
```

Figure 2-2. TSO Command File $RNMSUF.CLIST

```
00014050     IF '&JOBID'     = '' THEN SET JOBID=NN
00014060     IF '&ROOM'      = '' THEN SET ROOM=E2CM
00014070     IF '&PLOT'      = '' THEN SET PLOT=NO
00014100 /* REPLACE DATA */
00014200     IF '&NETYEAR' NE '' THEN DO
00014300                              C 14300 /09/&NYRN/
00014400                              14400 MYRNET=1 &NETYEAR
00014500                              ENDE
00014600     SET ACCT=&SUBSTR(11:14,&SYSPREF)
00014700     C 9000 99999 /#ACCT/&ACCT/ ALL
00014750     C 9000 '#SYSUID' '#SYSUID&JOBID'
00014800     C 9000 9001 /#SYSUID/&SYSUID/ ALL
00014900     C 9000 99999 /#SYSPREF/&SYSPREF/ ALL
00015000     C 9000 /,MYLE/,&ROOM/
00015100     C 14720 16600 ?#DATE?&SYSDATE? ALL
00015200     C 14720 16700 /#RUNNAME/&RUNNAME/ ALL
00015300     C 9001 /#TIME/&TIME/
00015400     C 9001 /#PRTY/&PRTY/
00015500     C 9000 /#COPY/&COPY/
00015600     C 9000 16650 /#MANNAME/&MANNAME/ ALL
00015700 /*  CHANGE COMPLICATED DATA */
00015800     IF &VERSION=GAR && &PLOT=YES THEN C 13300 /2/1/
00015900     IF &PLOT=YES THEN C 16750 /#PLOTNAME/&RUNNAME/
00016000     IF &PLOT=NO THEN DO
00016100                      DEL 16750
00016200                      DEL 18310 25300
00016300                      C 13300 /2/0/ ALL
00016400                      ENDE
00016500C 12500 /#REGSCN1/&VGF/
00016520C 16850 /#REGSCN1/&VGF/
00016540C 12930 /#FILU2/&INSTRF/
00016560C 16760 /#FILU2/&INSTRF/
00018000     C 15600 18100 / /*/ FIELD(70 70) ALL
00018100S8: WRITE S8. COMMAND:
00018120     VERIFY ON
00018200S9: WRITENR ?
00018300     READ
00018400     READOVAL COMMAND
00018500     IF '&COMMAND'='' THEN GOTO S10
00018600     &SYSOVAL
00018700     GOTO S9
00018800S10: SAVE RNMTEMP.CNTL
00018810     VERIFY OFF
00018900     SUBMIT RNMTEMP.CNTL
00019000     END NOSAVE
00019050WRITENR DELETE SUBMITTED JCL FILE? Y OR N:
00019060READ ANSWER
00019070IF &ANSWER=Y THEN +
00019100     DELETE RNMTEMP.CNTL
00019110ELSE WRITE YOU MUST DELETE RNMTEMP.CNTL BEFORE YOUR NEXT NRTNEM JOB SUBMISSION.
00019200     EXIT
```

Figure 2-2 (Concluded)

Line or Line Range in RNMEXE9R	Explanation	Effect by $RNMSUF.CLIST
9000-9001	JOB statement	symbols (strings preceded by #) are replaced with actual values
9020	Output routing specification	
9954-9995	Linkedit job step	
9970	Dataset BUILD is the library of object modules.	
9975		for SEM, #MAINP is replaced by SEMAIN9R and #BKD becomes BKDSEM8S; for GAR #MAINP becomes VARNET9R and #BKD becomes BLKDTA.
9985-9995	Names of object modules needed during link editing.	
9985		none for GAR; for SEM SERESC becomes SERESCSE.
9986-9889		deleted for SEM
9991-9994		deleted for GAR
10000-18200	Job step that executes NRTNEM.	
10000		supply REGION parameter depending on SEM or GAR
10020	Use the load module generated in the previous step; don't keep it after end of this step.	
12500		#REGSCN1 is replaced by the user's vehicle growth file name
12700	FORTRAN unit 6 is the unit for printed output	
12800	Unit 1 is a temporary file to receive data to be plotted	
12930		#FILU2 is replaced by the user's regulation instruction file name.
12940	Unit 8 contains the noise level dictionary	
13000-13150	From unit 3, the program reads mostly constant data	for GAR, FIMP is replaced by SIGMA0
13200-18200	Unit 4 data is read right from the input stream	

Line or Line Range in RNMEXE9R	Explanation	Effect by $RNMSUF.CLIST
13300-13840	Control strings (see User's Guide)	May be edited directly by the user. The user must edit at least the IVMASK control string for SEM runs.
	Strings as shown in Figure 2-1 are defaults for GAR	Establishes default strings for SEM
13820-13840		deleted for GAR
13900-14210	Vehicle breakdown ratios (see Appendix D of User's Guide)	
14300	Number of net years	Change 09 to actual number of net years (computed in lines 12900-13000, implemented in 14300).
14400	A default string of net years	Replace with actual net years (read in line 12800, implement in 14400)
14722-14756	RATIO data for SEM	deleted for GAR
14800-18200	Text for Title Page	
15600		if GAR, change appropriately
16600-16850		Symbols (preceded by #) are replaced by actual strings
17300-18100	Space for insertion of comments by the user	User may edit comments into these lines during Steps S3 or S8.
18310-18430	Linkedit job step for plotting	
18370	The Integrated Plotting Package is used	
18380	BUILD also contains some plotting modules	
18410		deleted for SEM
18415		deleted for GAR
18440-18490	Generation of neutral plotting file	
18450	&IPPTAPE is neutral plotting file	
18470	&PLINF contains data to be plotted (see line 12800)	
18500-18540	Creation of printer plots from neutral plotting file	

3. HOW TO MODIFY THE FORTRAN SOURCE CODE

A listing of all the source modules is provided in Appendix C. They are written in FORTRAN for IBM's FORTRAN H Extended Compiler. Each module (main program or subroutine) is sorted as a separate member of the partitioned dataset CN.EPADYN.S2KC.TRAWO (see Table 1-1 for a listing of datasets). When making modifications, the programmer goes through the following steps:

1. Edit the source module in WYLBUR, save the edited version in TRAWO. The same operation may replace an existing module or create a new one.
2. Modify the job and output routing statements in lines 1 and 2 of file CN.EPASRD.MUSN.FORT2 as appropriate*.
3. Change the member name of BUILD and TRAWO in lines 9 and 10 of FORT2 to the name of the edited or new source module.

Figure 3-1 shows a listing of file CN.EPASRD.MUSN.FORT2. It is used for submitting jobs for compiling source modules in TRAWO and saving the resulting object modules in BUILD.

*File CN.EPADYN.S2KC.FRRXC was originally used to modify or create an object module. However, this file is not operable since the program IFEAAB does not exist in STEPLIB FTHXLINK at NCC.

```
//EPASRD JOB (MUSN,COTM),COTMAN,PRTY=5
/*ROUTE PRINT RMT171
//*
//*  @FORT           FORTRAN G1 COMPILE AND SAVE OBJECT MODULE
//* DEFAULT PARAMETERS OF PROC FTG1C:
//*    CREGION=248K,PRINT=A,PUNCH=DUMMY,CPARM=
//*
//STEPFORT EXEC FTG1C,CREGION=500K,CPARM='MAP,ID'
//SYSPUNCH DD DSN=CN.EPADYN.S2KC.BUILD(DEGFAC1),DISP=(OLD,KEEP)
//SYSIN DD DSN=CN.EPADYN.S2KC.TRAWO(DEGFAC1),DISP=SHR
//COMPFORT  EXEC  PGM=IEBCOPY,PARM='COMPRESS'
//SYSPRINT  DD  SYSOUT=A
//SYSUT1    DD  DISP=OLD,DSN=CN.EPADYN.S2KC.TRAWO
//SYSUT2    DD  DISP=OLD,DSN=CN.EPADYN.S2KC.TRAWO
//SYSUT3   DD  UNIT=SYSDA,SPACE=(TRK,(1))
//SYSUT4   DD  UNIT=SYSDA,SPACE=(TRK,(1))
//SYSIN     DD  DUMMY
//COMPOBJ  EXEC  PGM=IEBCOPY,PARM='COMPRESS'
//SYSPRINT  DD  SYSOUT=A
//SYSUT1    DD  DISP=OLD,DSN=CN.EPADYN.S2KC.BUILD
//SYSUT2    DD  DISP=OLD,DSN=CN.EPADYN.S2KC.BUILD
//SYSUT3   DD  UNIT=SYSDA,SPACE=(TRK,(1))
//SYSUT4   DD  UNIT=SYSDA,SPACE=(TRK,(1))
//SYSIN     DD  DUMMY
```

Figure 3-1. Listing of File CN.EPASRD.MUSN.FORT2

4. DATA STORED EXTERNALLY TO THE PROGRAM MODULES

NRTNEM reads several data files in the course of its execution (see also Table 1-1):

A. Files with invariant names:

1.	CN.EPADYN.S2KC.NLDICT:	Noise level dictionary
2.	CN.EPADYN.S2KC.WYLIB(MILE):	Roadway mileages
3.	CN.EPADYN.S2KC.WYLIB(PERCNT):	Traffic percentages
4.	CN.EPADYN.S2KC.WYLIB(FIMP):	Fractional impact (SEM only)
5.	CN.EPADYN.S2KC.WYLIB(SIGMA0):	Noise level standard deviations (GAR only)
6.	CN.EPADYN.S2KC.WYLIB(FLOMIX08):	Flow mix

B. Files with user-assigned names:

7.	CN.EPAxxx.aaa.WYLIB(yyyyyy):	xxx = user id, aaaa = account code, yyyyyy = name of WYLIB member containing vehicle growth and population data.
8.	CN.EPAxxx.aaa.zzzzz:	Dataset containing regulation instructions.

Note that the block data subprograms (module BLKDAT for GAR, module BLKDTSEM for SEM) contain other data which are discussed in Section 5. Those of the above eight files which are not discussed in the User's Guide are explained in detail later in this section. Files 1 (NLDICT), 7 (VGFS001), and 8 (RIF) are discussed in the User's Guide. The vehicle population portion of file 7 is discussed in this section.

4.1 Roadway Mileages

Figure 4-1 shows the contents of the WYLIB member CN.EPADYN.S2KC.WYLIB(MILE). As can be seen, data is provided in NAMELIST format for an array called MILE. It is dimensioned as follows:

MILE (6, 9, 4, 5)

where there are six roadway types, nine place sizes, four population density categories, and five speed ranges. One thousand and eighty (1080) data items are therefore provided, arranged six to a line in 180 lines. Each provides the mileage for a particular collection of pieces of roads as described by the meanings of the array's indices.

```
KHIWAY2
MILE=    0,     3,    16,    41,    37,    94,
         0,     7,    21,    71,    71,   172,
         0,     1,     4,    11,    12,    31,
         0,     3,    17,    45,    42,   119,
         0,     5,    24,    58,    61,   149,
         0,     5,    29,    67,    69,   171,
         0,     1,     6,    14,    15,    33,
         0,     3,    27,    59,    63,   140,
         0,     0,     0,  8698,  6159,215859,
         6,    78,   438,  1085,   989,  2494,
         1,    19,    59,   201,   203,   491,
         1,     6,    31,    84,    95,   242,
         7,    69,   360,   963,   886,  2514,
         2,    23,   110,   273,   283,   699,
         1,    18,    99,   229,   233,   579,
         1,    10,    97,   210,   228,   504,
         1,    16,   154,   336,   364,   804,
         0,     0,     0,     0,     0,     0,
        14,   182,  1025,  2540,  2314,  5837,
         7,   125,   384,  1321,  1333,  3216,
         7,    51,   280,   761,   866,  2197,
         9,    88,   458,  1223,  1125,  3193,
         7,    92,   444,  1100,  1142,  2821,
         4,    67,   372,   860,   877,  2178,
         1,    25,   241,   523,   568,  1253,
         3,    58,   554,  1206,  1306,  2887,
         0,     0,     0,     0,     0,     0,
         0,     0,     0,     0,     0,     0,
         6,   101,   309,  1063,  1073,  2589,
         7,    53,   290,   788,   897,  2276,
         0,     0,     0,     0,     0,     0,
         0,     0,     0,     0,     0,     0,
         0,     0,     0,     0,     0,     0,
         2,    31,   299,   650,   705,  1556,
         4,    75,   712,  1551,  1679,  3712,
         0,     0,     0,     0,     0,     0,
         1,     8,    43,    83,    76,   422,
         1,    16,    54,   144,   145,   775,
         0,     2,    10,    22,    25,   141,
         1,     9,    44,    92,    85,   534,
         1,    13,    61,   119,   123,   673,
         1,    14,    76,   137,   140,   769,
         0,     2,    16,    28,    30,   147,
         1,     7,    70,   120,   129,   631,
         0,  1714,  3111,  43489, 30792,863437,
        18,   202,  1138,  2213,  2017,  11225,
         4,    44,   152,   411,   415,  2208,
         2,    15,    80,   171,   195,  1090,
        22,   182,   937,  1958,  1805,  11311,
         5,    60,   286,   556,   577,  3146,
         3,    46,   257,   466,   475,  2606,
         2,    26,   251,   429,   465,  2266,
         3,    42,   401,   685,   742,  3619,
         0,     0,     0,     0,     0,     0,
        42,   472,  2662,  5179,  4720,  26264,
        28,   291,   999,  2693,  2717,  14473,
        20,   133,   729,  1551,  1765,  9888,
        29,   231,  1191,  2487,  2293,  14368,
        20,   241,  1154,  2242,  2328,  12695,
        11,   174,   967,  1753,  1767,  9803,
```

Figure 4-1. Contents of CN.EPADYN.S2KC.WYLIB(MILE)

62.	4,	66,	625,	1068,	1156,	5639,
63.	10,	150,	1441,	2459,	2664,	12992,
64.	0,	0,	0,	0,	0,	0,
65.	0,	0,	0,	0,	0,	0,
66.	22,	234,	803,	2167,	2167,	11649,
67.	21,	138,	754,	1606,	1828,	10241,
68.	0,	0,	0,	0,	0,	0,
69.	0,	0,	0,	0,	0,	0,
70.	0,	0,	0,	0,	0,	0,
71.	6,	81,	776,	1526,	1436,	7002,
72.	13,	193,	1852,	3161,	3425,	16702,
73.	0,	0,	0,	0,	0,	0,
74.	1,	5,	29,	24,	21,	422,
75.	2,	10,	36,	41,	41,	775,
76.	0,	1,	7,	6,	7,	141,
77.	1,	6,	29,	26,	24,	534,
78.	1,	9,	41,	34,	33,	673,
79.	1,	9,	51,	39,	40,	769,
80.	0,	1,	11,	8,	9,	147,
81.	1,	5,	47,	34,	37,	631,
82.	0,	10286,	18666,	130468,	92375,	863437,
83.	24,	134,	759,	626,	571,	11225,
84.	6,	30,	102,	116,	117,	2208,
85.	3,	10,	54,	48,	55,	1090,
86.	30,	121,	624,	555,	511,	11311,
87.	6,	40,	191,	157,	163,	3146,
88.	4,	31,	172,	132,	134,	2606,
89.	2,	18,	168,	121,	132,	2266,
90.	4,	28,	268,	194,	210,	3619,
91.	0,	0,	0,	0,	0,	0,
92.	55,	315,	1776,	1465,	1335,	26284,
93.	37,	194,	667,	762,	769,	14473,
94.	27,	89,	486,	439,	499,	9888,
95.	38,	154,	793,	705,	650,	14368,
96.	26,	161,	769,	635,	659,	12695,
97.	16,	116,	646,	495,	506,	9803,
98.	6,	44,	417,	302,	327,	5639,
99.	14,	101,	961,	696,	754,	12992,
100.	0,	0,	0,	0,	0,	0,
101.	0,	0,	0,	0,	0,	0,
102.	30,	156,	537,	614,	619,	11649,
103.	28,	92,	503,	455,	517,	10241,
104.	0,	0,	0,	0,	0,	0,
105.	0,	0,	0,	0,	0,	0,
106.	0,	0,	0,	0,	0,	0,
107.	7,	54,	518,	375,	407,	7002,
108.	18,	129,	1235,	895,	969,	16702,
109.	0,	0,	0,	0,	0,	0,
110.	8,	3,	16,	8,	7,	0,
111.	17,	6,	21,	14,	14,	0,
112.	3,	1,	4,	2,	2,	0,
113.	12,	3,	17,	9,	8,	0,
114.	12,	5,	24,	11,	12,	0,
115.	10,	5,	29,	13,	13,	0,
116.	1,	1,	6,	3,	3,	0,
117.	6,	3,	27,	11,	12,	0,
118.	5079,	33427,	60663,	178931,	126246,	0,
119.	201,	78,	438,	209,	191,	0,
120.	48,	17,	59,	39,	39,	0,
121.	26,	6,	31,	16,	18,	0,
122.	256,	69,	360,	185,	170,	0,

Figure 4-1 (Continued)

```
123.      55,      23,     110,      52,      54,       0,
124.      34,      18,      99,      44,      45,       0,
125.      20,      10,      97,      40,      44,       0,
126.      33,      16,     154,      65,      70,       0,
127.       0,       0,       0,       0,       0,       0,
128.     470,     182,    1025,     488,     446,       0,
129.     317,     112,     384,     254,     256,       0,
130.     233,      51,     280,     146,     166,       0,
131.     325,      88,     458,     235,     217,       0,
132.     224,      92,     444,     211,     220,       0,
133.     129,      67,     372,     165,     169,       0,
134.      51,      25,     241,     101,     109,       0,
135.     117,      58,     554,     232,     251,       0,
136.       0,       0,       0,       0,       0,       0,
137.       0,       0,       0,       0,       0,       0,
138.     255,      90,     309,     205,     206,       0,
139.     241,      53,     290,     152,     172,       0,
140.       0,       0,       0,       0,       0,       0,
141.       0,       0,       0,       0,       0,       0,
142.       0,       0,       0,       0,       0,       0,
143.      63,      31,     299,     125,     135,       0,
144.     151,      75,     712,     298,     323,       0,
145.       0,       0,       0,       0,       0,       0,
146.      13,       1,       6,       2,       1,       0,
147.      29,       2,       7,       3,       3,       0,
148.       6,       0,       1,       0,       0,       0,
149.      21,       1,       6,       2,       2,       0,
150.      20,       2,       8,       2,       2,       0,
151.      17,       2,      10,       3,       3,       0,
152.       2,       0,       2,       1,       1,       0,
153.      10,       1,       9,       2,       2,       0,
154.   26665,   40289,   73107,   73931,   52345,       0,
155.     343,      26,     147,      42,      38,       0,
156.      83,       6,      20,       8,       8,       0,
157.      44,       2,      10,       3,       4,       0,
158.     437,      23,     120,      37,      35,       0,
159.      94,       7,      37,      10,      11,       0,
160.      59,       6,      33,       9,       9,       0,
161.      35,       3,      32,       8,       9,       0,
162.      55,       5,      51,      13,      14,       0,
163.       0,       0,       0,       0,       0,       0,
164.     802,      60,     343,      98,      90,       0,
165.     541,      37,     128,      51,      51,       0,
166.     397,      17,      94,      29,      33,       0,
167.     555,      29,     152,      47,      44,       0,
168.     381,      30,     148,      42,      44,       0,
169.     222,      22,     123,      33,      34,       0,
170.      87,       8,      80,      20,      22,       0,
171.     199,      19,     185,      47,      51,       0,
172.       0,       0,       0,       0,       0,       0,
173.       0,       0,       0,       0,       0,       0,
174.     435,      30,     103,      41,      41,       0,
175.     411,      18,      97,      30,      34,       0,
176.       0,       0,       0,       0,       0,       0,
177.       0,       0,       0,       0,       0,       0,
178.       0,       0,       0,       0,       0,       0,
179.     107,      10,     100,      25,      27,       0,
180.     256,      25,     238,      60,      65,       0,
181.       0,       0,       0,       0,       0,       0,
```

Figure 4-1 (Concluded)

4.2 Operating Mode Percentages

Figure 4-2 shows the contents of WYLIB member CN.EPADYN.S2KC.WYLIB(PERCNT). The data indicate the percent of time vehicles spend in various operating modes as a function of roadway type. Since there are four operating modes, six roadway types, and 14 vehicle types, one would expect 336 data items. However, the data differ only for two roadway type groups (group 1 includes types 1, 2, 3; group 2 includes 4, 5, 6) and for four vehicle type groups (group 1: vehicle types 1 through 7, and 13 and 14; group 2: vehicle types 8, 9, 10; group 3: vehicle type 11; group 4: vehicle type 12) (see array IPER in BLOCK DATA). Therefore, only 4*2*4 numbers are required for filling array PERCNT which is dimensioned:

PERCNT (4, 2, 4)

where the first index refers to operating mode, the second to roadway type group, and the last to vehicle type group.

```
1.      PERCNT= 0.0470,0.0536,0.8888,0.0106,0.1540,0.1600,0.5510,0.1350,
2.              0.0500,0.0500,0.8500,0.0500,0.1300,0.1700,0.5600,0.1400,
3.              0.0500,0.0500,0.8500,0.0500,0.2000,0.2000,0.2600,0.3400,
4.              0.0500,0.0500,0.8500,0.0500,0.0900,0.0900,0.2100,0.6100,
```

Figure 4-2. Contents of CN.EPADYN.S2KC.WYLIB(PERCNT)

4.3 Fractional Impact Data

Figure 4-3 shows the contents of WYLIB member CN.EPADYN.S2KC.WYLIB(FIMP). The data indicate the fractional impact factors for the SEM. Array FIMP is filled which is dimensioned:

FIMP (80, 5)

where 80 reserves space for 80 factors corresponding to noise levels spaced 1 dB apart; the 5 reserves spaces for five different fractional impact functions:

1 -- Sleep disruption

2 -- Sleep awakening

3 -- Indoor Speech Interference

4 -- Outdoor and Pedestrian Speech Interference

5 -- All fractional impact factors are set to 1 which results in a simple "population exposed" count

```
1.      FIMP=
2.      0.007,0.020,0.034,0.047,0.061,0.074,0.088,0.101,0.115,0.128,
3.      0.142,0.155,0.169,0.182,0.196,0.209,0.223,0.236,0.250,0.263,
4.      0.277,0.290,0.304,0.317,0.331,0.344,0.358,0.371,0.385,0.398,
5.      0.412,0.425,0.439,0.452,0.466,0.479,0.493,0.506,0.520,0.533,
6.      0.547,0.560,0.574,0.587,0.601,0.614,0.628,0.641,0.655,0.668,
7.      0.682,0.695,0.709,0.722,0.736,0.749,0.763,0.776,0.790,0.803,
8.      0.817,0.830,0.844,0.857,0.871,0.884,0.898,0.911,0.925,0.938,
9.      0.952,0.965,0.979,0.992,1.000,1.000,1.000,1.000,1.000,1.000,
10.     0.060,0.071,0.082,0.093,0.104,0.115,0.126,0.137,0.148,0.159,
11.     0.170,0.181,0.192,0.203,0.214,0.225,0.236,0.247,0.258,0.269,
12.     0.280,0.291,0.302,0.313,0.324,0.335,0.346,0.357,0.368,0.379,
13.     0.390,0.401,0.412,0.423,0.434,0.445,0.456,0.467,0.478,0.489,
14.     0.500,0.511,0.522,0.533,0.544,0.555,0.566,0.577,0.588,0.599,
15.     0.610,0.621,0.632,0.643,0.654,0.665,0.676,0.687,0.698,0.709,
16.     0.720,0.731,0.742,0.753,0.764,0.775,0.786,0.797,0.808,0.819,
17.     0.830,0.841,0.852,0.863,0.874,0.885,0.896,0.907,0.918,0.929,
18.     0.000,0.001,0.002,0.003,0.004,0.005,0.006,0.007,0.008,0.009,
19.     0.011,0.013,0.015,0.017,0.019,0.022,0.028,0.032,0.041,0.052,
20.     0.090,0.138,0.205,0.275,0.355,0.465,0.560,0.665,0.800,0.935,
21.     1.000,49*1.0,
22.     0.010,0.018,0.028,0.035,0.042,0.052,0.058,0.063,0.068,0.072,
23.     0.098,0.145,0.245,0.365,0.475,0.600,0.705,0.820,0.922,0.984,
24.     1.000,59*1.0,
25.     80*1.0,
```

Figure 4-3. Contents of CN.EPADYN.S2KC.WYLIB(FIMP)

4.4 Noise Level Standard Deviations

Figure 4-4 shows the contents of WYLIB member CN.EPADYN.S2KC.WYLIB(SIGMAO). The user may supply the standard deviations of the vehicle noise levels if he runs the GAR. The data may be present if SEM is run, but is not used. The basic noise levels are supplied through the noise level dictionary file NLDICT and the user's regulation instruction file. Denoting a noise level standard deviation by SIG, a basic noise level LEQ is modified according to:

```
LEQ = LEQ + 0.05*LN(10)*SIG**2
```

(see DO-Loop in module TRAWO(VARNET9R) ending at label 4101).

It is recommended that this feature of the program not be used for the following reason:

- SEM and GAR use the same noise level dictionary file, but only GAR can accept noise level standard deviation data. Running GAR with nonzero standard deviation data therefore would lead to using different noise levels in the two models.

The noise level standard deviations should therefore always be set to zero as shown in Figure 4-4.

```
1.      SIG=1400*0.E0,
```

Figure 4-4. Contents of CN.EPADYN.S2KC.WYLIB(SIGMAO)

4.5 Flow Mix

Figure 4-5 shows the contents of WYLIB member CN.EPADYN.S2KC.WYLIB(FLOMIX08). The data contain the percentage vehicle mix in traffic flow by place size and roadway type. Since there are 14 vehicle types, nine place size categories, and six roadway types, one might expect 756 data items. However, the data are assumed to differ only for four place size groups (group 1: place size categories 1-3; group 2: 4-6; group 3: 7-8; group 4: 9) and five roadway groups (group 1: roadway types 1 and 2; group 2: 3; group 3: 4; group 4: 5; group 5: 6). The data fill array FLOMIX which is dimensioned:

```
FLOMIX (14, 4, 5)
```

where the first index refers to vehicle type, the second to place size group, and the last to roadway group.

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```
1.      FLOMIX=
2.       0.4345, 0.1320, 0.0155, 0.0575, 0.1490, 0.0872, 0.0005,
3.       0.0211, 0.0917, 0.00026 , 0.00077 , 0.000   , 0.0093, 0.0007,
4.       0.4302, 0.1337, 0.0157, 0.0582, 0.1509, 0.0872, 0.0005,
5.       0.0211, 0.0917, 0.00039 , 0.00039 , 0.000   , 0.0093, 0.0007,
6.       0.4345, 0.1322, 0.0156, 0.0575, 0.1492, 0.0872, 0.0005,
7.       0.0211, 0.0917, 0.0     , 0.00047 , 0.000   , 0.0093, 0.0007,
8.       0.3764, 0.1145, 0.0135, 0.0498, 0.1292, 0.1130, 0.0004,
9.       0.0274, 0.1615, 0.00240 , 0.0     , 0.00192 , 0.0093, 0.0007,
10.      0.4363, 0.1326, 0.0156, 0.0577, 0.1496, 0.1259, 0.0005,
11.      0.0305, 0.0403, 0.00026 , 0.00077 , 0.000   , 0.0093, 0.0007,
12.      0.4365, 0.1326, 0.0156, 0.0577, 0.1496, 0.1259, 0.0005,
13.      0.0305, 0.0403, 0.00039 , 0.00039 , 0.000   , 0.0093, 0.0007,
14.      0.4364, 0.1327, 0.0156, 0.0578, 0.1498, 0.1259, 0.0005,
15.      0.0305, 0.0403, 0.00    , 0.00047 , 0.000   , 0.0093, 0.0007,
16.      0.3858, 0.1174, 0.0138, 0.0511, 0.1324, 0.1568, 0.0005,
17.      0.038 , 0.0599, 0.00240 , 0.0     , 0.00192 , 0.0093, 0.0007,
18.      0.4005, 0.1217, 0.0143, 0.0530, 0.1373, 0.1779, 0.0005,
19.      0.0431, 0.0311, 0.00004 , 0.00535 , 0.00018 , 0.0140, 0.0011,
20.      0.4015, 0.1220, 0.0144, 0.0531, 0.1377, 0.1779, 0.0005,
21.      0.0431, 0.0311, 0.00007 , 0.00278 , 0.00081 , 0.0140, 0.0011,
22.      0.3992, 0.1215, 0.0143, 0.0529, 0.1371, 0.1779, 0.0005,
23.      0.0431, 0.0311, 0.00    , 0.00213 , 0.00523 , 0.0140, 0.0011,
24.      0.3863, 0.1173, 0.0138, 0.0511, 0.1324, 0.1813, 0.0005,
25.      0.0439, 0.0514, 0.00    , 0.0     , 0.00696 , 0.0140, 0.0011,
26.      0.4166, 0.1264, 0.0149, 0.0550, 0.1427, 0.1491, 0.0005,
27.      0.0361, 0.0381, 0.00004 , 0.00535 , 0.00018 , 0.0140, 0.0011,
28.      0.4175, 0.1268, 0.0149, 0.0552, 0.1431, 0.1491, 0.0005,
29.      0.0361, 0.0381, 0.00007 , 0.00278 , 0.00081 , 0.0140, 0.0011,
30.      0.4151, 0.1263, 0.0149, 0.0550, 0.1425, 0.1491, 0.0005,
31.      0.0361, 0.0381, 0.0     , 0.00213 , 0.00523 , 0.0140, 0.0011,
32.      0.5012, 0.1523, 0.0179, 0.0663, 0.1718, 0.0232, 0.0006,
33.      0.0056, 0.0391, 0.0     , 0.0     , 0.00696 , 0.0140, 0.0011,
34.      0.5014, 0.1523, 0.0179, 0.0663, 0.1718, 0.0477, 0.0006,
35.      0.00115, 0.0099, 0.00004 , 0.00535 , 0.00018 , 0.0140, 0.0011,
36.      0.5024, 0.1526, 0.0180, 0.0664, 0.1723, 0.0477, 0.0005,
37.      0.00115, 0.0099, 0.00007 , 0.00278 , 0.00081 , 0.0140, 0.0011,
38.      0.5001, 0.1521, 0.0179, 0.0662, 0.1716, 0.0477, 0.0006,
39.      0.00115, 0.0099, 0.00    , 0.00213 , 0.00523 , 0.0140, 0.0011,
40.      0.5236, 0.1591, 0.0187, 0.0693, 0.1795, 0.0167, 0.0006,
41.      0.004 , 0.0065, 0.000   , 0.000   , 0.00696 , 0.0140, 0.0011,
42.     &END
```

Figure 4-5. Contents of CN.EPADYN.S2KC.WYLIB(FLOMIX08)

4.6 Distribution of Vehicle Population by Type

This is also referred to as "Vehicle Breakdown" and is described in detail in Appendix D of the User's Guide.

4.7 Vehicle Population and Age Data

Appendix C of the User's Guide describes the Vehicle Growth File, a portion of which contains vehicle population and age data. Array REMO (Figure C-1 of the User's Guide) contains the vehicle population data as it existed in 1974, broken down by model year, for six vehicle type groups (group 1: light vehicles (types 1 through 7); group 2: trucks (types 8 and 9); group 3: intercity buses (10); group 4: transit buses (11); group 5: school buses (12); group 5: motorcycles (types 13 and 14)). Array MYREF contains six years which indicate the model years with which the corresponding population data in REMO begins. Thus, the second number in the second line of REMO (59871.) is the population of trucks of model year 1959 as they existed in 1974. Note that the populations for the earliest model years (first line of REMO) also include all vehicles older than that model year.

The REMO data in the master vehicle growth file CN.EPADYN.S2KC.WYLIB (VGFS001) is identical to the data in BLOCK DATA. Thus, it is superfluous. However, if updated information should become available, it will not be necessary to change BLOCK DATA, but only this input data since it supercedes the data in BLOCK DATA.

5. DATA STORED INTERNALLY TO THE PROGRAM MODULES

5.1 The GAR BLOCK DATA Subprogram

GAR's BLOCK DATA module, TRAWO(BLKDTA), contains data and verbal definitions (see Appendix C) for the GAR constants listed alphabetically below.

A	GAMM	NAT
ADBA	IEQAGE	NHT
ADT	IPER	NIDD
ALC	ITABLE	NSR
AREA	IVAF	NVT
BONE	IVBD	N16DB
BTWO	IVGF	PGFØ
CDBA	JFLO	POP
CZD	JPGF	POPDEN
DBK	JWYLE	POPLTN
DBSUM	KFLO	REMO
DDBA	KPER	V
EDGEPZ	LANE	VAF
FACT3	LIFE	VGF
FACT4	MIXDB	WDTHPZ
FI	MYRB	WIDTH
FPAREA	MYREF	XK
FPROAD		

5.2 The SEM BLOCK DATA Subprogram

SEM's BLOCK DATA module, TRAWO(BKDSEM8S), contains data and verbal definitions (see Appendix C) for the SEM constants listed alphabetically below.

A
ADBL
ADT
AREA
AVDBL
COC
CZD
DBK
EDGEPZ
FPAREA
FPROAD
GAMM
IEQAGE
IFIMP
INOUT
IPACT
IPER
ITABLE
IVAF
IVBD
IVGF
JCOC
JFLO
JPGF
JWYLE
KFLO
KOM
KPER
LANE
LIFE
MYRB
MYREF
NADB
NAT
NHT
NIDD
NRDB
NSR
NVT
PACT
PGFØ
PLDEN
POP
POPDEN
POPLTN
RDBCUT
RDBEDG
RDBL
REDGE
REMO
REPZ
SEPROB
SHIFT
V
VAF
VGF
WDTHPZ
WIDTH

6. THE SOURCE CODE

6.1 Introduction

The source code of all routines is written in FORTRAN, occasionally taking advantage of nonstandard features offered by IBM's FORTRAN H Extended Compiler. The code is stored by module: each module contains one routine (main program or subroutine, no matter what the size) and is stored as a member of the partitioned dataset TRAWO (see Table 1-1). Section 3 explains the mechanics of how to make changes to the modules.

Section 6.2 gives an overview of the models through the use of flowcharts and subroutine linkage tables.

In Section 6.3 we refer to the source listings in Appendix C where we first provide a listing of all source modules in the sequence given in Figure 3-1. Note that the listings for each module first show the cross-references and then the source code itself in an edited format provided by the compiler (except BLOCK DATA routines). The source code contains numerous comments which the reader should consider an integral part of this manual.

Section 6.4 gives symbol dictionaries for the GAR and SEM.

6.2 Flowcharts and Subroutine Linkages

6.2.1 The General Adverse Response Model

Figure 6-1 shows a flowchart of the GAR stressing the overall logic flow through the program, but including most subroutine calls for easy reference by programming personnel. Table 6-1 lists the modules in alphabetical order and indicates their purpose; also listed are the source module's member names in TRAWO which are sometimes different from the FORTRAN global symbol under which a module is known to the linkage editor. Note that the object module member names for dataset BUILD equal those in TRAWO.

Table 6-2 gives a cross-reference of subroutine calls.

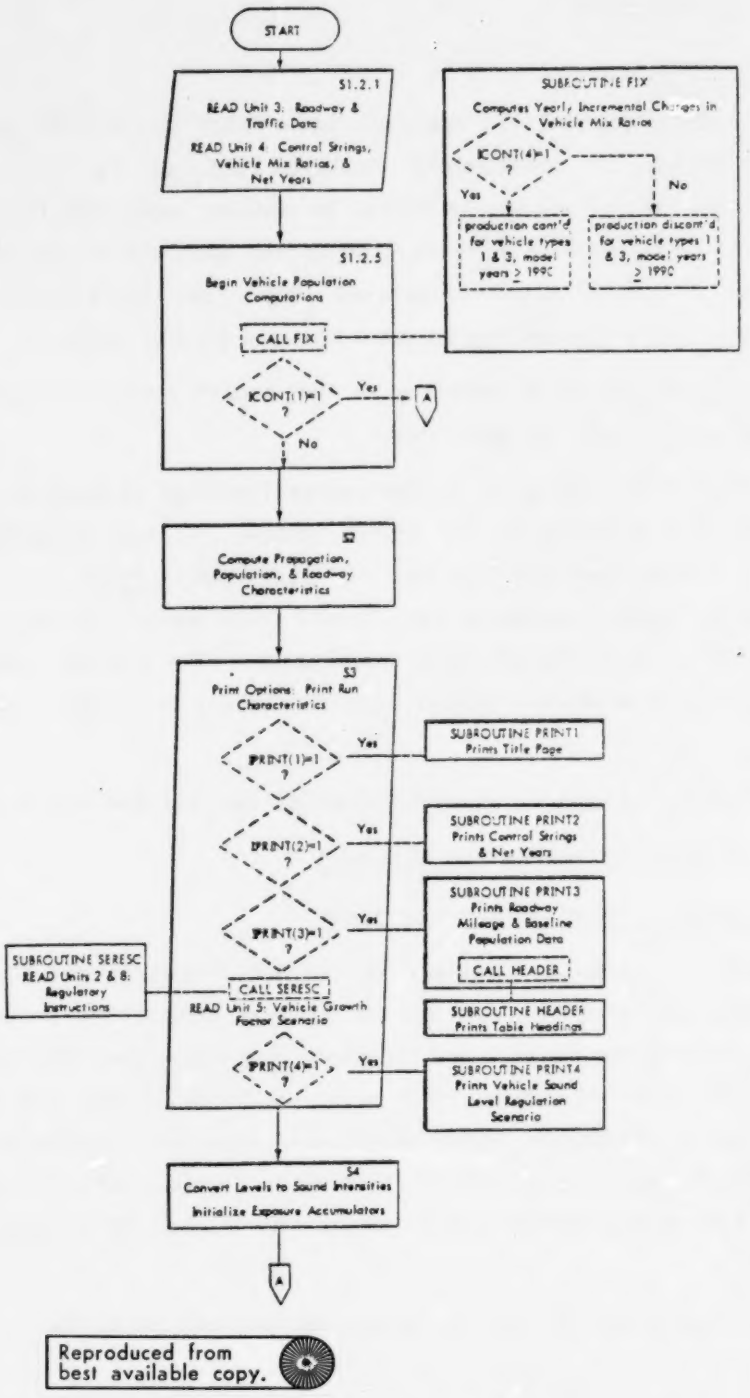

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Figure 6–1. Flowchart for GAR

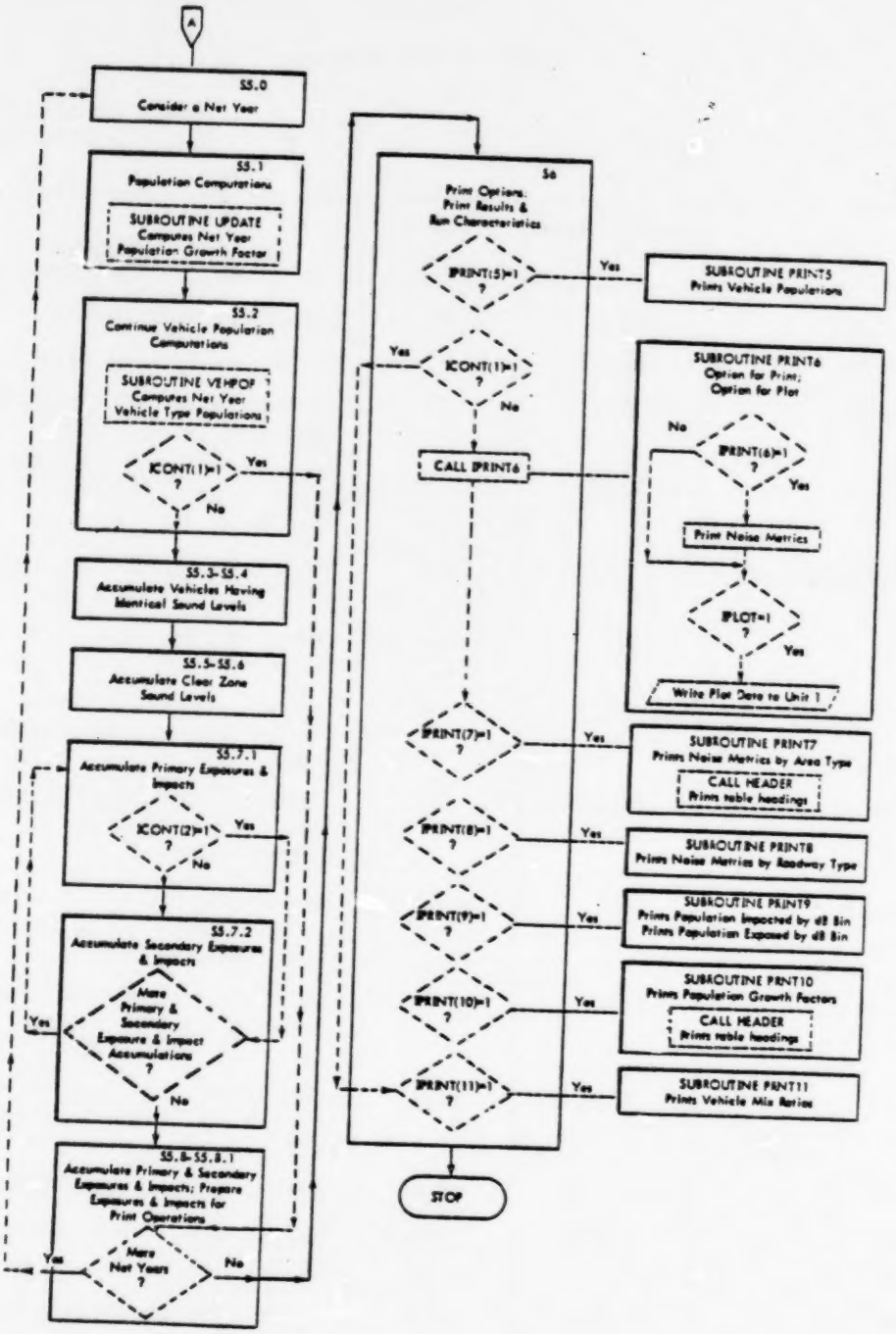

Figure 6-1 (Concluded)

Table 6-1

List of GAR Modules

FS = Function subprogram
Sub = Subroutine

Module Name	Member Name in TRAWO	Module Type	Purpose
ADD(AL1,AL2)	ADD	FS	adds two sound levels
BLOCK DATA	BLKDTA	block data	contains compiled data
CONST(GAM)	CONST	FS	assigns attenuation factor dependent constants
DBLEV(X)	DBLEV	FS	returns "DBLEV" at "X", given "X"; reads Wyle curve, inverse to "RAD(AL)"
FACTOR(GAM,DR,DFCL)	FACTOR	Sub	assigns and combines attenuation factor dependent constants
FIX	FIX	Sub	computes the new array YINC to fix function "VBD"
HEADER	HEADER	Sub	prints a common heading for all population tables (in PRINT3, PRINT7, & PRNT10)
IYBAS(MDUM)	IYBAS	FS	converts standard notation year, to year with respect to baseline (in VEHPOP(IYRN))
IYES(IYR)	IYES	FS	converts year with respect to reference, to year with respect to "MYRE" (in VEHPOP(IYRN))
IYREF(MDUM)	IYREF	FS	converts standard year to year measured with respect to reference year (in VEHPOP(IYRN))
MAIN	VARNET9R	Main	calculates the number of people impacted by noise originating from highway traffic
PRINT1	PRINT1	Sub	prints title page for each run
PRINT2	PRINT2	Sub	prints user opted control strings
PRINT3	PRINT3	Sub	prints constant data by area type "J"
PRINT4	PRINT4	Sub	prints the regulation scenario
PRINT5	PRINT5	Sub	prints vehicle population
PRINT6(IPLOT)	PRT6V9R	Sub	prints primary impact metrics

Table 6-1 (Continued)

Module Name	Member Name in TRAWO	Module Type	Purpose
PRINT7	PRINT7	Sub	prints population impacted, by area type
PRINT8	PRINT8	Sub	prints population impacted, by roadway type
PRINT9(ICASE)	PRINT9	Sub	prints impact and exposure in 5 dB intervals
PRNT10	PRNT10	Sub	prints population growth factors by area type
PRNT11	PRNT11	Sub	prints vehicle breakdown factor for each year from 1957 through 2013
RAD(AL)	RAD	FS	gives distance at which given level "AL" occurs, given "AL0"; it is an inverse Wyle curve reader
SERESC	SERESC	Sub	defines the vehicle noise levels using a noise level dictionary file on unit 8 and accepting regulatory selection instructions from unit 2
UPDATE(MYRC)	UPDATE	Sub	updates population growth factor each year
VBD	VBD	FS	computes current vehicle breakdown (in PRNT11 & VEHPOP(IYRN))
VEHPOP(IYRN)	VEHPOP	Sub	computes vehicle population from "REMO", growth, and attrition factors
XMINUS(AL1,AL2)	XMINUS	FS	takes the difference between two sound levels

Table 6-2

GAR Subroutine Cross-Reference

Invoked Subprogram	F/S	Invoking Section of MAIN PROGRAM									Invoking Subprogram					
		1.2.5	2.2	2.3.2	3.0	5.1	5.2	5.4	5.7.1	5.7.2	6.0	PRINT3	PRINT7	PRNT10	PRNT11	SERESC	VEHPOP
ADD	F		X														
CONST*	S																
DBLEV	F																
FACTOR	F			X					X	X							
FIX	S	X															
HEADER	S																
IYBAS	F																
IYES	F											X	X	X			
IYREF	F							X									X
PRINT1	S																X
PRINT2	S				X			X									
PRINT3	S				X												X
PRINT4	S				X												
PRINT5	S																
PRINT6	S										X						
PRINT7	S										X						
PRINT8	S										X						
PRINT9	S										X						
PRNT10	S										X						
PRNT11	S										X						
RAD	F																
SERESC	S																
UPDATE	S				X				X	X							
VBD	F					X											
VEHPOP	S													X			X
XMINUS	F		X				X										
ZERO	S															X	
ZERO1	S															X	

F = Function Subprogram

S = Subroutine

*Note: Subroutine CONST is not referenced in this version.

6.2.2 The Single Event Model

The following pages contain:

Figure 6-2: Flowchart for SEM

Table 6-3: Alphabetical list of modules

Table 6-4: Cross-reference of subroutine calls.

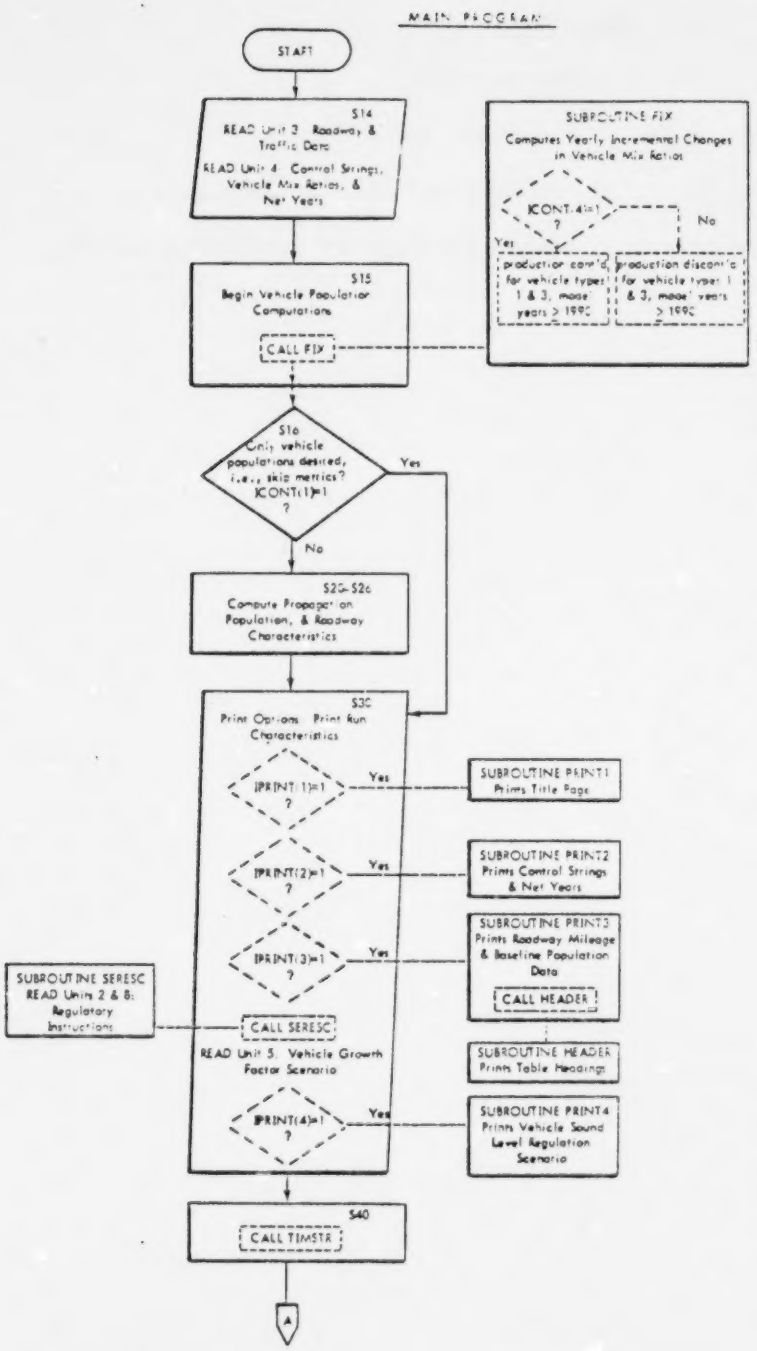

Figure 6-2. Flowchart for SEM

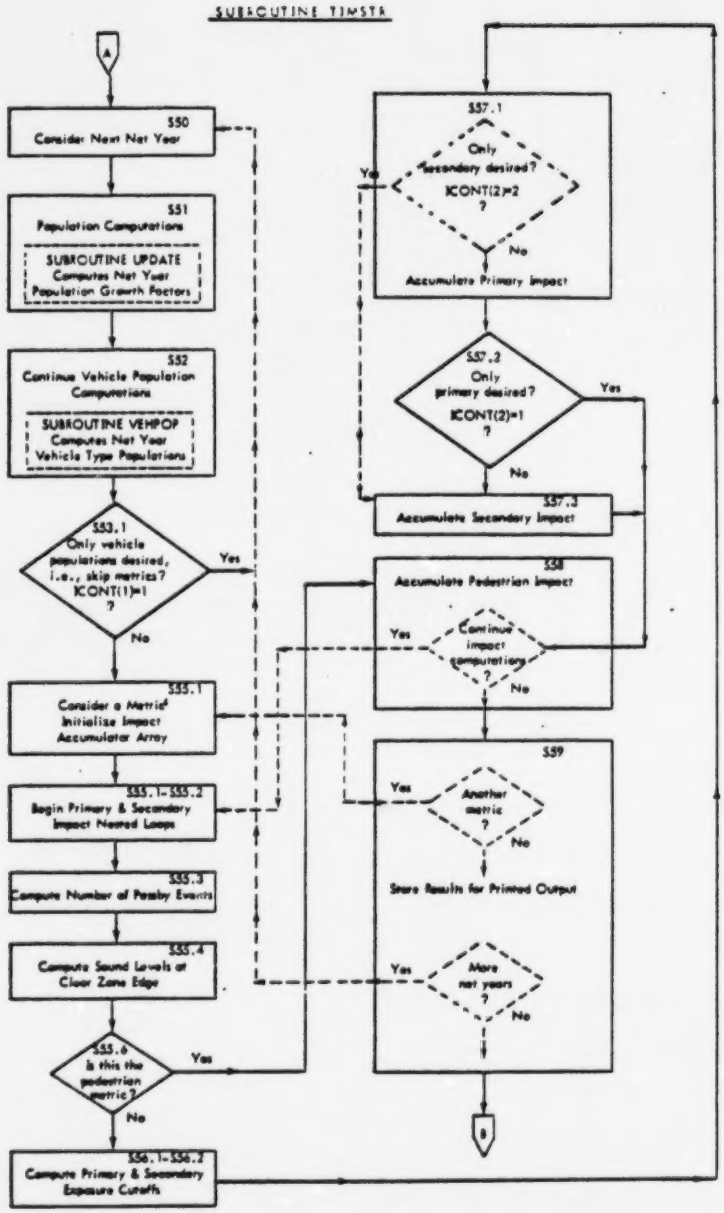

Figure 6-2 (Continued)

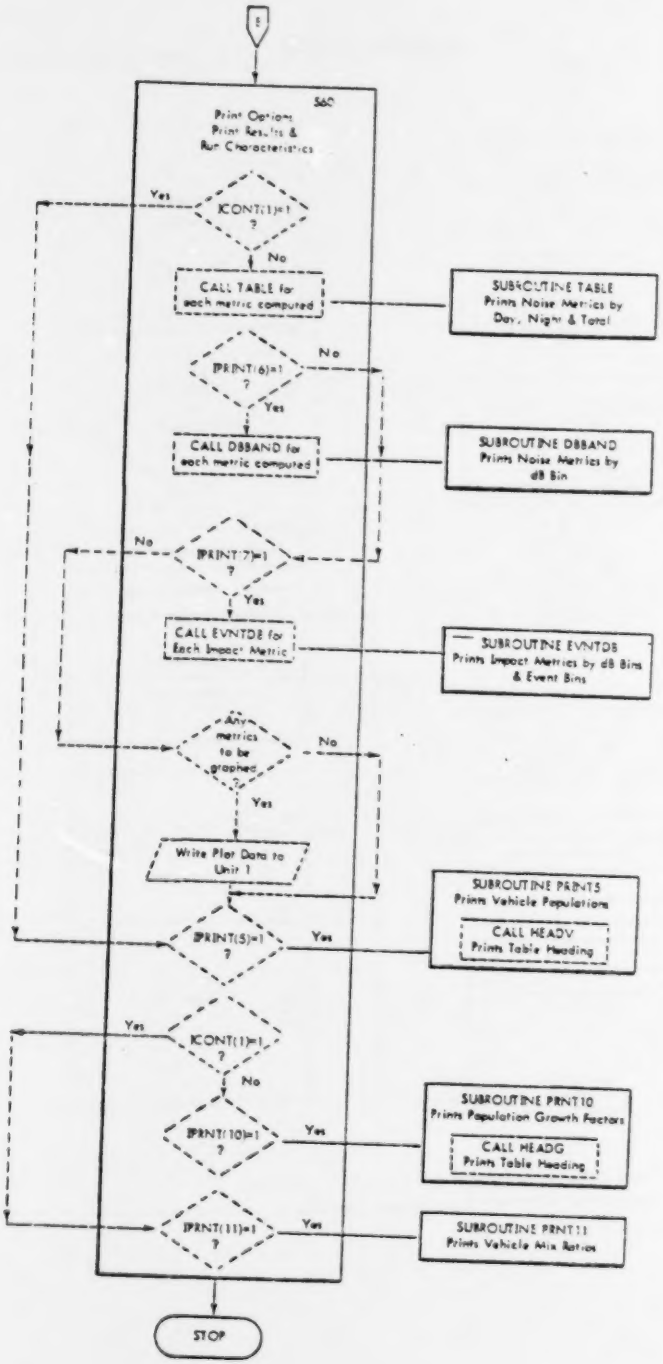

Figure 6-2 (Concluded)

Table 6-3

List of SEM Modules

FS = Function Subprogram
SUB = Subroutine

Module Name	Member Name in TRAWO	Module Type	Purpose
COLECT(POPINC,IE,KDB)	COLECT	SUB	Accumulates impacts
DBBAND(IBEG,ARRAY,TITLE)	DBBAND	SUB	Prints noise metrics by dB bin
EVENTS	EVENTS	SUB	Computes the event bins in which noise impacts may occur
EVNTDB(IBEG,TITLE,IIM)	EVNTDB	SUB	Prints noise metrics by dB & event bins
FIX	FIXSEM	SUB	Computes the new array YINC to fix function "VBD"
HEADER(ISUB)	HEADRSEM	SUB	Prints table headings
HEADG(ICASE)	HEADG	SUB	Prints table headings
HEADV	HEADV	SUB	Prints table headings
IYBAS(MDVM)	IYBASSEM	FS	Converts standard notation year, to year with respect to baseline
IYES(IYR)	IYESSEM	FS	Converts year with respect to reference, to year with respect to "MYRE"
IYREF(MDVM)	IYREFSEM	FS	Converts standard year, to year with respect to reference year
MAIN	SEMAIN9R	MAIN	Reads, computes & prints data to be exercised by SUBROUTINE TIMSTR
NORMAL(IM)	NORMAL	SUB	Prepares impact data for printed tabulation
PRINT1	PRT1SEM	SUB	Prints title page for each run
PRINT2	PRT2SEM	SUB	Prints control strings & net years

Table 6-3 (Continued)

Module Name	Member Name in TRAWO	Module Type	Purpose
PRINT3	PRT3SEM	SUB	Prints roadway milage & baseline population data
PRINT4(ICS)	PRT4SEM	SUB	Prints vehicle sound level regulation scenario
PRINT5	PRT5SEM	SUB	Prints vehicle population
PRNT10	PRT10SEM	SUB	Prints population growth factors by area type
PRNT11	PRT11SEM	SUB	Prints vehicle breakdown factor for each year from 1957 through 2013
SERESC(KRET)	SERESCSE	SUB	Defines the vehicle noise levels using a noise level dictionary file on unit 8 and accepting regulatory selection instructions from unit 2
TABLE(ARRAY,TITLE)	TABLE	SUB	Prints noise metrics by day, night & total
TIMSTR	TIMSTR8S	SUB	Computes seven metrics of noise originating from roadway traffic
UPDATE(YEAR)	UPDATSEM	SUB	Updates population growth factor each year in a piecewise linear fashion as a function of place size
VBD(I)	VBDSEM	FS	Computes current vehicle mix ratio
VEHPOP(IYRN)	VEPOPSEM	SUB	Computes vehicle population from "REMO", growth and attrition factors
ZERO(R,N)	ZERO	SUB	Initializes real arrays to zero
ZERO1(I,N)	ZERO1	SUB	Initializes integer arrays to zero

Table 6-4

SEM Subroutine Cross-Reference

Invoked Subprogram	F/S	Invoking Section of MAIN Program					Invoking Section of SUBROUTINE TIMSTR								Invoking Subprogram							
		14	15	30	30.2	40	51	52	55.01	55.1	57.1	57.3	58	59	60	EVENTS	HEADG	PRINT3	PRINT5	PRNT10	PRNT11	SERESC	VEHPOP
COLECT	S										X		X										
DBBAND	S														X								
DUMPER*	S																						
EVENTS	S								X														
EVNTDB	S														X								
FIX	S		X																				
HEADER	S																X	X					
HEADG	S																			X			
HEADV	S																		X				
IYBAS	F																						X
IYES	F																						X
IYREF	F																						X
NORMAL	S													X									
PRINT1	S			X																			
PRINT2	S			X																			
PRINT3	S			X																			
PRINT4	S				X																		
PRINT5	S														X								
PRNT10	S														X								
PRNT11	S														X								
SERESC	S			X																			
TABLE	S														X								
TIMSTR	S					X																	
UPDATE	S						X																
VBD	F																				X		X
VEHPOP	S							X															
ZERO	S	X								X						X						X	
ZERO1	S															X						X	

F = Function Subprogram

S = Subroutine

*Note: Subroutine DUMPER is not referenced in this version.

6.3 Source Code Listings

The NRTNEM Version 9R source code as of September 29, 1980, appears in Appendix C. Due to its bulk, it was impractical to include it into the main text of this manual.

6.4 Symbol Dictionaries

The GAR Symbol Dictionary starts on the next page, the one for SEM start on page 6-27.

6.4.1 GAR Symbol Dictionary

SYMBOL DICTIONARY FOR THE GENERAL ADVERSE RESPONSE MODEL OF THE NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL

VERSION 9R

KEY:

ENTRIES ARE OF THE GENERAL FORM: NAME, INDICES, NATURE, COMMON BLOCK OR SUBROUTINE, AND DESCRIPTION.
"NAME" OCCUPIES THE FIRST COLUMN.
"INDICES" OCCUPY COLUMN 2 AND GIVE THE INDICES OF ARRAY VARIABLES.
COLUMN 3 CONTAINS THE NATURE AND IS A CODED DESCRIPTION OF THE NATURE OF THE VARIABLE. THE CODE BEFORE THE COLON INDICATES WHETHER THE NAME IS A CONSTANT (C) OR A VARIABLE (V). THE CODE AFTER THE COLON TELLS WHAT KIND OF VARIABLE OR CONSTANT IT IS.
THE OPTIONS ARE:

FOR CONSTANTS:

- C — COMPILED CONSTANTS. INITIALIZED IN DATA STATEMENTS.
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- S — SELECTOR ARRAYS.

FOR VARIABLES:

- A — ACCUMULATORS INTO WHICH QUANTITIES ARE ACCUMULATED.
- D — DUMMY VARIABLES.
- C — COUNTER VARIABLES: KEEP TRACK OF ORDINAL OF TABLES PRINTED.
- I — VARIABLES WHOLLY INTERNAL TO A SUBROUTINE.

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S STORAGE VARIABLES FOR VARIOUS COMPUTED METRICS.
T TEMPORARY VARIABLES FOR PASSING NUMBERS ALONG TO SUBROUTINES IN COMMON AREAS OR FOR LEGIBILITY OF CODE.
X INDEX VARIABLES. THEIR RANGE IS GIVEN BY THE EXPRESSION R(X:Y) AT THE BEGINNING OF THE DESCRIPTION.
PA INTERMEDIATE ACCUMULATOR FROM WHICH A METRIC IS LATER DERIVED.

THE RANGE OF AN INDEX IS GIVEN IN THE FORM R(X:Y) OR R(Y) AT THE BEGINNING OF THE DESCRIPTION. X IS THE LOWER LIMIT AND Y THE UPPER LIMIT. WHEN X IS NOT EXPLICITLY GIVEN, IT IS 1.

"COMMON BLOCK OR SUBROUTINE" GIVES EITHER THE NAME OF THE COMMON BLOCK WITHIN WHICH THE SYMBOL APPEARS OR THE SUBROUTINE (OR MAIN PROGRAM) GLOBAL NAME WHERE IT IS USED IF IT IS NOT IN A COMMON BLOCK.

THE "DESCRIPTION" IS A SHORT, ONE-LINE EXPLANATION OF THE MEANING OF THE VARIABLE.

THE ENTRIES FOLLOW AND ARE IN ALPHABETICAL ORDER.

SYMBOL	RANGE	NATURE	COMMON BLOCK OR SUBROUTINE (GLOBAL SYMBOL)	EXPLANATORY TEXT
A	(2,IT)	C:C	BIG001	ATTENUATION CURVE COEFFICIENT
ADBA	(IDB)	C:C	BIG003	AVERAGE DB LEVEL OF A DB BAND
ADT	(K,J)	C:C	BIG001	AVERAGE DAILY TRAFFIC FLOW ON A ROADWAY K IN AREA J (SUMMED OVER ALL LANES)
AL		V:D	RAD	DDBA(IDB) FOR PRIMARY EXPOSURE OR DBLO FOR SECONDARY EXPOSURE IN MAIN'S FUNCTION SUBPROGRAM RAD(AL)
ALC	(J)	C:C	BIG001	LOCAL CRITERION LEVEL FOR EXPOSURE
ALEVEL	(K,L)	V:T	BIG003	TEMPORARY STORAGE OF ALO (Q.V.)
ALREG	(LEVEL,L,M,I)	C:I	BIG002	REGULATION LEVELS
ALWPJ	(J,IYRN)	V:S	BIG002	LWP BY AREA TYPE FOR EACH NET YEAR

ALWPK	(K,IYRN)	V:AS	BIG002	LEVEL WEIGHTED POPULATION BY ROADWAY TYPE
ALWPOP	(IYRN)	V:S	BIG002	LEVEL WEIGHTED POPULATION FOR EACH YEAR
ALO		V:T	BIG001	NOISE LEVEL AT EDGE OF CLEAR ZONE
AL1		V:D	ADD, XMINUS	A DB LEVEL TO BE ADDED
AL2		V:D	ADD, XMINUS	A DB LEVEL TO BE ADDED OR SUBTRACTED
AML	(J,K,ID,LEVEL)	C:D	BIG003	LINEAR VEHICLE DENSITY=ADT/V/NLANE
AONE	(ID,J,K)	C:D	MAIN	ATTENUATION CURVE COEFFICIENT 1
AREA	(ID,J)	C:C	BIG001	AREA OF POPULATION REGION ID,J
A1		V:T	BIG001	=AONE(ID,J,K),ATTENUATION CURVE COEFFICIENT 1
A2		V:T	BIG001	=A(TWO(IT)),ATTENUATION CURVE COEFFICIENT 2
ATWO	(IT)	C:C	MAIN	ATTENUATION CURVE COEFFICIENT 2
BIGSUM		V:A	VEHPOP	ACCUMULATOR FOR TOTAL NUMBER OF VEHICLES GVTOT
BLANK		C:C	SERESC	BLANK CHARACTER STRING
BONE	(ID,J,K)	C:D	BIG003	ATTENUATION CURVE COEFFICIENT ONE
BTWO	(ID,J,K)	C:D	BIG003	ATTENUATION CURVE COEFFICIENT TWO
BVPOP	(I)	C:D	BIG001	BASELINE VEHICLE POPULATION BY VEHICLE TYPE
B1		V:T	BIG001	=BONE(ID,J,K),ATTENUATION CURVE COEFFICIENT
B2		V:T	BIG001	=BTWO(ID,J,K),ATTENUATION CURVE COEFFICIENT
CBAR	(IT)	C:C	MAIN	DISTANCE FROM CZD (Q.V.) AT WHICH KINK IN ATTENUATION CURVE OCCURS
CDBA	(J,IDB)	C:D	BIG003	COMPLEMENTARY DB LEVELS, S.T. CDBA (J,IDB)+ADBA(IDB)=ALC(J) (Q.V.)
CL		V:T	MAIN	=ALC(J) LOCAL CRITERION LEVEL
CONV1		C:C	MAIN	CONVERSION FACTOR IN EQUATION FOR FACT2

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CONV2		C:C	MAIN	CONVERSION FACTOR: HALF MILE TO FEET CONVERSION
CON0		C:D	BIG001	STORED COMPUTED CONSTANT=CON(0.5)
CON2		C:D	BIG001	STORED COMPUTED CONSTANT=CON(0.5)
CZD	(ID,J,K)	C:C	BIG001	CLEAR ZONE DISTANCE
DBEDGE		V:T	MAIN	=DBLEV(EDGE). DR LEVEL AT CRITERION DISTANCE IN SECONDARY EXPOSURE COMPUTATION
DBK	(IT)	C:C	BIG001	DB LEVEL AT WHICH KINK IN ATTENUATION CURVE OCCURS
DBLO		V:T	MAIN	LOW END OVERRIDE OF SECONDARY EXPOSURE JDB LOOP
DBMEAN		V:T	MAIN	ADJUSTED ADBA FOR DB BAND CONTAINING ALO.=AVERAGE OF ALO AND LOWER LIMIT OF THAT BAND
DBSUM	(IDB,JDB)	C:C	BIG003	RESULTANT DB LEVEL = ADBA(IDB)+ADBA(JDB)
DDBA	(IDB)	C:C	BIG002	DB BAND LIMITS
DDBSUM		V:T	MAIN	ADJUSTED DBSUM (Q.V.) FOR DB BAND CONTAINING ALO:=AVERAGE OF ADBA(IDB) & ALO
DECK		C:I	SERESC	='*DK'
DELEXP		V:T	MAIN	SECONDARY EXPOSURE DELTA
DFCL		V:T	MAIN, FACTOR	DISTANCE OF THE CENTERLINE OF A LANE FROM EDGE OF CLEARZONE
DLWP		V:I	PRINTG	DELTA LWP=LWP-LWP(BASELINE)
DR		V:D	MAIN, FACTOR	DISTANCE OF A LANE FROM EDGE OF ROADWAY
DREF		C:C	MAIN	REFERENCE DISTANCE=50 FT
EDGE	(ID,J,K)	C:D	BIG003	CRITERION DISTANCE FOR SECONDARY EXPOSURE CUTOFF
EDGEPZ	(ID,J,K)	C:D	BIG003	EDGE OF POPULATED ZONE
ELREG	(LEVEL,L,M,I)	C:D	MAIN	NOISE LEVEL EQUATION CONSTANT DERIVED FROM ALREG, EQUIVALENCED WITH ALREG
ENI		V:A	MAIN	ACCUMULATOR FOR LWP
ENIA		V:A	MAIN	ACCUMULATOR FOR LWP BY AREA TYPE

ENIDB	(IDB,IYRN)	V:AS	BIG002	LMP IN DB BANDS FOR EACH YEAR
ENINET		V:A	MAIN	NET LMP FOR A SPECIFIC HIGHWAY TYPE AND SOUND LEVEL BIN COMBINATION
EXPDB	(IDB,IYRN)	V:AS	BIG002	EXPOSURE IN DB BANDS FOR EACH YEAR
EXPDEC	(IDB,K)	V:AP	BIG003	DETAILED NET EXPOSURE DECREASE (SHIFTED FROM IDB TO ANOTHER IDB) INTERMEDIATE ACCUMULATOR
EXPINC	(IDB,K)	V:AP	BIG003	DETAILED NET EXPOSURE INCREASE INTERMEDIATE ACCUMULATOR
EXPNET		V:A	MAIN	NET EXPOSURE FOR A SPECIFIC HIGHWAY TYPE AND SOUND LEVEL BIN COMBINATION
FACRET		V:T	MAIN	=FACT4*PGF (Q.V.)
FACT2	(ID,J,K)	C:D	BIG003	CONSTANT FACTOR IN NOISE EQUATION
FACT3	(ID,J)	C:D	MAIN	POPULATED AREA FACTOR IN NOISE ACCUMULATION
FACT4	(ID,J)	C:D	BIG003	POPULATION FACTOR IN MAIN'S NOISE CALCULATION
FI	(J)	C:C	BIG001	FRACTION OF PEOPLE EXPOSED WHO ARE IMPACTED
FLOMIX	(I,KFLO,JFLO)	C:I3	BIG003	FLOMIX OF TYPE I VEHICLE
FPAREA	(J,ID)	C:C	BIG001	FRACTION OF AREA WHICH IS POPULATED
FPROAD	(J,K)	C:C	BIG001	FRACTION OF ROADWAY ALONG POPULATED AREAS
GAM		V:D	FACTOR	CLASSICAL ATTENUATION FACTOR
GAMM	(K,J)	C:C	BIG002	CLASSICAL ATTENUATION COEFFICIENT
GTOT		V:IA	PRINT3	BASELINE U.S. POPULATION
GVTOT	(IYRN)	V:S	BIG002	GRAND VEHICLE TOTAL FOR YEAR IYRC
HEAD	(J,2)	V:I	HEADER	A SET OF HEADINGS FOR AREA TYPE TABLES
HEADER	(2,4)	C:C	PRINT4	TEXT STRING FOR PRINTING TABLES
HIWAY2		:	MAIN	A NAMELIST COMPRISED OF MILE, PERCNT, FLOMIX, SIG
I		V:X	(MANY)	R(14): INDEX, ONE OF 14 VEHICLE TYPES
IAGE		V:T	VEHPOP	CURRENT AGE OF VEHICLES OF A PARTICULAR MODEL YEAR
ICONT	(12)	C:I4	BIG004	A CONTROL STRING FOR SPECIFYING PROGRAM BEHAVIOR

ID	V:X	(MANY)	R(NIDD(J)): INDEX FOR A POPULATION DENSITY REGION WITHIN AN AREA TYPE J
IDB	V:X	PRINT9, MAIN	R(16): ONE OF 16 DB BANDS
IDBFLG	V:	MAIN	FLAG TO SKIP INITIALIZATION BLOCK IN DB BAND LOOPS
IDUMP (12)	C:I4	BIG004	ARRAY CONTROLLING THE DUMPING OF VARIABLES
IEQAGE (IVBD)	C:C	BIG001	EQUIVALENT AGE OF VEHICLES LUMPED INTO REFERENCE YEAR
II	V:IX	PRINT4	R(2): USED BY VARIABLE STRING HEADER (II,M) TO PRINT COMPLEMENTARY HALVES OF TABLE HEADINGS
ILANE	V:X	MAIN	R(NLANE): INDEX FOR THE I-TH LANE
ILEV	V:IX	PRINT4	R(NLEVEL): INDEX TO REGULATION YEARS AND LEVELS, FOR PRINTING OF REGULATION SCENARIO TABLE ENTRIES
IPER (I)	C:CS	BIG003	PERCENT TABLE SELECTOR FOR VEHICLE TYPES
IPLOT	C:I4	MAIN, PRINT6	FLAG TO OUTPUT DERIVED DATA ONTO PLOTTING UNIT 1
IPR	V:D	PRINT6	DETERMINES WHETHER OR NOT PRINTED OUTPUT IS DESIRED
IPRINT (6)	C:I4	BIG004	ARRAY CONTROLLING THE SELECTION OF TABLES TO PRINT
IRONT (NVT)	V:C	SERESC	COUNTS NUMBER OF REGULATIONS PER VEHICLE TYPE
IRYR	V:I2	SERESC	REGULATION YEAR
ISP	V:C	SERESC	COUNTER FOR SPEED RANGE
IT	V:T	BIG001	=JWYLE(ID,J). ATTENUATION CURVE SELECTOR
ITABLE	V:C	BIG002	ORDINAL OF TABLE
ITABS	V:C	(MANY)	SUB-TABLE NUMBER
IVAF (I)	C:CS	BIG001	VAF TABLE SELECTOR
IVBD (I)	C:CS	BIG001	VEHICLE BREAKDOWN GROUP SELECTOR

IVEH		C:X	SERESC	VEHICLE TYPE
IVGF	(I)	C:CS	BIG001	VGF TABLE SELECTOR
IVMASK	(I)	C:I4	BIG004	VEHICLE MASK. IF MASK BIT OF THE I-TH TYPE IS ZERO, NOISE CONTRIBUTION FROM THAT TYPE IS ZERO
IYR		V:D	PRINT2	A YEAR IN RELATIVE FORM TO BE CHANGED TO STANDARD FORM OR ANOTHER RELATIVE FORM
IYRN		V:X	(MANY)	R(NYRN) (MAXIMUM=9) THE ORDINAL OF A NET YEAR
I1		V:I	PRINT4	=I+1
J		V:X	(MANY)	R(NAT): INDEX FOR AN AREA TYPE (DETERMINED BY THE PLACE SIZE)
JDB		V:X	MAIN	R(N16DB): INDEX FOR ONE OF 16 DB BANDS
JFLO	(J)	C:CS	BIG003	FLOW MIX TABLE SELECTOR FOR TYPE J
JJ		V:X	UPDATE, MAIN	JJ RANGES THROUGH RANGE OF JPGF
JMILE	(J)	V:IA	PRINT3	THE MILEAGE OF ROADWAY IN AREA J, ALL ROADWAY TYPES
JPGF	(J)	C:CS	BIG001	POPULATION GROWTH FACTOR SELECTOR
JWYLE	(J,ID)	C:C	BIG001	ATTENUATION CURVE SELECTOR
K		V:X	(MANY)	R(NHT): INDEX FOR A ROADWAY TYPE
KFLO	(K)	C:CS	BIG003	FLOW MIX TABLE SELECTOR FOR TYPE K
KMASK	(K)	C:I4	BIG004	ROADWAY TYPE MASK--IF MASK BIT IS ZERO, THE NOISE LEVEL OF THAT ROADWAY TYPE IS SET TO ZERO
KMILE		V:IA	PRINT3	TOTAL MILEAGE OF TYPE K ROADWAYS. ALL U.S.
KP		V:X	MAIN	INDEX FOR ROADWAY TYPE USED IN SECONDARY EXPOSURE CALCULATION
KPER	(K)	C:CS	BIG003	PERCENT TABLE SELECTOR FOR ROADWAY TYPES
L		V:X	(MANY)	R(NSR): INDEX FOR A SPEED RANGE
LANE	(J,K)	C:C	BIG001	NUMBER OF LANES OF ROADWAY TYPE J,K

LDB		V:X	MAIN	R(16): INDEX FOR ONE OF 16 DB BANDS
LEVEL		V:X	MAIN	R(NLEVEL): INDEX TO REGULATION LEVELS
LIFE	(IVAF)	C:C	BIG001	NUMBER OF ENTRIES IN VAF TABLE
M		V:X	(MANY)	R(4): INDEX FOR AN OPERATING MODE (ACCELERATION, DECELERATION, CRUISE AND IDLE)
MDUM		V:D	IYBAS, IYREF	SUBROUTINE VEHPOP(IYRN) (CALLED BY MAIN) SUBSTITUTES MYRB AND MODYR INTO FUNCTION SUBPROGRAMS IYREF(MDUM) AND IYBAS(MDUM) AS APPROPRIATE
MILE	(K,J,ID,L)	C:I3	BIG002	MILES OF ROADWAY
MILEJK	(J)	V:IA	PRINT3	THE MILEAGE OF ROADWAY IN AREA J, ROADWAY TYPE K
MIXDB	(IDB, JDB)	C:D	BIG003	RESULTANT LEVEL SORTING MACHINE
MLEVEL		V:I	PRINT4	=NLEV(IIM)
MODYR		V:X	BIG001	A VEHICLE MODEL YEAR
MSUM		V:IA	PRINT3	TOTAL U.S. ROADWAY MILEAGE
MYOLD		V:T	MAIN, VEHPOP	=MYRE(1) EARLIEST SURVIVAL YEAR
MYR		V:IX	PRNT11	R(1957:2013): MODEL YEAR FOR COLUMN HEADINGS MODYR=MYR
MYRB		C:C	BIG002	BASELINE YEAR=1974
MYRC		V:X	(MANY)	R(MYRB:MYRNET(NYRN)): CURRENT YEAR IN TIME NET UNDER CONSIDERATION
MYRE	(I)	V:	BIG001	EARLIEST YEAR FROM WHICH TYPE I VEHICLES SURVIVE
MYREF	(IVBD)	C:C	BIG001	REFERENCE YEAR FOR VEHICLE BREAKDOWN GROUP IVBD
MYREG	(LEVEL,M,I)	C:I5	BIG002	REGULATION YEARS
MYRNET	(IYRN)	C:I4	BIG002	A NET OF YEARS FOR WHICH THE COMPUTATION IS TO BE DONE
NAT		C:C	BIG002	NUMBER OF AREA TYPES=9
NHT		C:C	BIG002	NUMBER OF ROADWAY TYPE=6=RANGE OF K

NID		V:	PRINT7, MAIN	=NIDD(J). NUMBER OF DENSITY REGIONS
NIDD	(J)	C:C	BIG002	NUMBER OF DENSITY REGIONS IN AN AREA TYPE
NII	(J)	V:I	PRINT7	NOISE IMPACT INDEX (IN PERCENT) BY AREA TYPE
NLANE		V:	MAIN	=LANE(J,K). NUMBER OF LANES
NLDKNM		V:I	SERESC	STRING IDENTIFYING A NOISE LEVEL DATA BLOCK FOR ONE REGULATION FOR ONE VEHICLE, IN NOISE LEVEL DICTIONARY
NLDKNR		V:I	SERESC	LIKE NLDKNM, BUT READ FROM UNIT 2 (REGULATION INSTRUCTION FILE)
NLEV	(I,M)	C:I5	BIG002	NUMBER OF REGULATION LEVELS
NLEVEL		V:	MAIN, PRINT4	=NLEV(I,M) NUMBER OF REGULATION LEVELS
NPMILE		V:A	MAIN	NUMBER OF POPULATED MILES FOR GIVEN REGION
NSR		C:C	BIG002	NUMBER OF SPEED RANGES=5=RANGE OF L
NUMS	(7)	C:C	PRNT11	LIGHT VEHICLE TYPE IDENTIFICATION NUMBERS FOR ROW HEADINGS
NVT		C:C	BIG002	NUMBER OF VEHICLE TYPES=14
NYRN		C:I4	BIG002	NUMBER OF YEARS IN YEAR NET
N16DB		C:C	BIG002	NUMBER OF DB BAND LIMITS=1+NUMBER OF DB BANDS
PERCNT	(M,KPER,IPER)	C:I3	BIG003	PERCENT OF TIME IN EACH OPERATING MODE
PEXP		V:A	MAIN	ACCUMULATOR FOR NUMBER OF PEOPLE EXPOSED
PEXPA		V:A	MAIN	ACCUMULATOR FOR NUMBER EXPOSED BY AREA TYPE
PEXPJ	(J,IYRN)	V:S	BIG002	EXPOSURE BY AREA TYPE FOR EACH YEAR
PEXPK	(X,IYRN)	V:SA	BIG002	EXPOSURE BY ROADWAY TYPE FOR EACH YEAR
PGF	(JPGF(J))	V:	BIG001	CURRENT POPULATION GROWTH FACTOR
PGF0	(JJ)	C:C	BIG001	FIVE INITIAL POPULATION GROWTH FACTORS, EACH =1 FROM BLOCK DATA

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PI		C:C	MAIN	RATIO OF CIRCUMFERENCE TO DIAMETER OF A CIRCLE
PIMP		V:A	MAIN	ACCUMULATOR FOR NUMBER OF PEOPLE IMPACTED
PIMPA		V:A	MAIN	ACCUMULATOR FOR NUMBER IMPACTED BY AREA TYPE
PIMPJ	(J,IYRN)	V:S	BIG002	IMPACT BY AREA TYPE FOR EACH YEAR
PIMPK	(K,IYRN)	V:AS	BIG002	IMPACT BY ROADWAY TYPE FOR EACH YEAR
PINC	(IP,JJ)	C:C	UPDATE	THREE SETS OF EXTRAPOLATORY INCREMENTS FOR THE POPULATION GROWTH FACTOR
PLO		V:A	MAIN	ACCUMULATOR FOR POWER LEVEL AT EDGE OF CLEARZONE
PMYEXP	(IDB,K)	V:A	BIG003	DETAILED PRIMARY EXPOSURE ACCUMULATOR WITHIN AN AREA TYPE ID,J
PMYLWP	(IDB,K)	V:A	BIG003	PRIMARY LEVEL-WEIGHTED POPULATION ACCUMULATOR WITHIN AN AREA TYPE ID,J
POP	(J)	V:IA	BIG003	THE BASELINE POPULATION OF AREA TYPE J
POP		V:A	PRINT7	POPULATION ACCUMULATOR
POPDEN	(ID,J)	C:C	BIG002	BASELINE POPULATION DENSITY BY POPULATION REGION
POPEXP	(IYRN)	V:S	BIG002	POPULATION EXPOSED FOR EACH YEAR IN TIMESTREAM
POPID	(ID)	V:IA	PRINT3	BASELINE POPULATION BY DENSITY REGION
POPIMP	(IYRN)	V:S	BIG002	POPULATION IMPACTED FOR EACH YEAR IN TIMESTREAM
POPINC		V:	MAIN	INCREMENTAL PEXPDB IN PRIMARY EXPOSURE CALCULATION
POPLTN	(ID,J)	C:D	BIG002	BASELINE POPULATION BY POPULATION REGION
POPOP		V:A	MAIN	ACCUMULATOR FOR CURRENT U.S. POPULATION
PROMPT		V:I	SERESC	TO CHECK IF A *DK LINE WAS ENCOUNTERED IN NOISE LEVEL DICTIONARY (UNIT 8)
PXPDBK	(IDB)	V:A	BIG003	EXPOSURE IN DB BANDS FOR ALL BANDS WITHIN AN AREA ID,J (I.E., INCL. BANDS < LOCAL CRITERION)
REGSCN		:	MAIN	A NAMELIST COMPRISED OF ALREG, NLEV, MYREG (SUPERSETED BY CALLING SERESC)
REMO	(IVBD, IYREF)	C:C	BIG001	BASELINE YEAR VBD GROUP POPULATIONS
REXP		V:I	PRINT6	RELATIVE EXPOSURE. POPEXP(IYR)/TOPOP(IYR)

RLWP	V:I	PRINT7, RELATIVE LWP. .=LWP(IYR)/TOPOP(IYR)	
		PRINT6	
RNAME (5)	C:I4	BIG004	RUNNAME AND DATE STRING
RRCI	V:I	PRINT6	RELATIVE CHANGE IN IMPACT=DLWP/LWP (BASELINE)
SIG (L,M,LEVEL,I)	C:I3	BIG003	STANDARD DEVIATION OF ALREG. THE VEHICULAR NOISE LEVEL
STOPGF (J,IYRN)	C:D	BIG002	STORED POPULATION GROWTH FACTOR FOR EACH YEAR
SUM	V:A	(MANY)	GENERALLY USED AS AN ACCUMULATOR
SUM1	V:A	MAIN	GENERAL ACCUMULATOR
TOPOP (IYRN)	V:S	BIG002	TOTAL U.S. POPULATION FOR EACH YEAR IN TIMESTREAM
V (L)	C:C	BIG003	AVERAGE VELOCITY OF SPEED RANGES
VAF (IVBD,IYREF)	C:C	BIG001	FOUR ATTRITION FACTOR TABLES
VBDS (I)	V:I	PRNT11	LIGHT VEHICLE BREAKDOWN FOR TABLE ENTRIES
VBD74 (I)	C:I4	BIG001	1974 BREAKDOWN RATIOS FOR EACH OF THE 14 VEHICLE TYPES (IN MAIN, VBD(I), FIX, & VEHPOP(IYRN))
VBD77 (I)	C:I4	BIG001	1977 BREAKDOWN RATIOS FOR EACH OF SEVEN VEHICLE TYPES (IN MAIN, FIX, AND VBD(I))
VBD85 (I)	C:I4	BIG001	1985 BREAKDOWN RATIOS FOR EACH OF SEVEN VEHICLE TYPES (IN MAIN, FIX, AND VBD(I))
VBD90 (I)	C:D	BIG001	1990 BREAKDOWN RATIOS FOR EACH OF SEVEN VEHICLE TYPES (IN FIX AND VBD(I))
VEHGF1	:	MAIN	A NAMELIST COMPRISED OF VGF, IVGF, REMD, MYREF, VAF, LIFE
VGF (IYBAS,IVGF)	C:C	BIG001	SIX VEHICLE GROWTH FACTOR TABLES
VINC (I)	C:D	BIG001	SEVEN VBD INCREMENTS INTERPOLATED (IN FIX) BETWEEN VBD74 AND VBD77
VML (I,M,LEVEL)	V:A	BIG003	NUMBER OF VEHICLES IN EACH NOISE LEVEL RANGE
VPOP (I,IYES)	V:	BIG001	CURRENT YEAR VEHICLE POPULATION BY MODEL YEAR
VTOT (I,IYRN)	V:S	BIG002	VEHICLE BY TYPE FOR EACH YEAR
WDTHPZ (ID,J)	C:D	BIG003	WIDTH OF THE POPULATED ZONE

WIDTH	(J,K)	C:C	BIG001	WIDTH OF A LANE
X		V:D	DBLEV	A DISTANCE AT WHICH A DB LEVEL IS TO BE FOUND
XINC	(I)	C:C	BIG001	INTERPOLATION TABLES FOR THE VBD FUNCTION
XK	(ID,J,K)	C:D	BIG003	DISTANCE AT WHICH KINK IN ATTENUATION CURVE OCCURS
XKINK		V:	BIG001	=XK (ID,J,K). DISTANCE AT WHICH KINK IN ATTENUATION CURVE OCCURS
XLINE	(18)	C:I4	PRINT1	ALPHANUMERIC STRING ARRAY FOR THE RUN'S TITLE PAGE
XLO		V:	MAIN	LOWER SPATIAL LIMIT OF A DB BAND
XUP		V:T	MAIN	UPPER SPATIAL LIMIT OF A DB BAND
XX		V:	VEHPOP	TOTAL NUMBER OF TYPE I VEHICLES
Y		V:	MAIN	=ADBA (IDB) Q.V.
YINC	(I)	C:D	BIG001	2ND INTERPOLATION TABLE FOR THE VBD FUNCTION

6.4.2 SEM Symbol Dictionary

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**********************************************************************************************
*     SYMBOL DICTIONARY FOR THE SINGLE EVENT MODEL OF THE NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL     *
*                                                                                            *
*                                          VERSION 9R                                        *
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KEY:

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S STORAGE VARIABLES FOR VARIOUS COMPUTED METRICS.
T TEMPORARY VARIABLES FOR PASSING NUMBERS ALONG TO SUBROUTINES IN COMMON AREAS OR FOR LEGIBILITY OF CODE.
X INDEX VARIABLES. THEIR RANGE IS GIVEN BY THE EXPRESSION R(X:Y) AT THE BEGINNING OF THE DESCRIPTION.
PA INTERMEDIATE ACCUMULATOR FROM WHICH A METRIC IS LATER DERIVED.

THE RANGE OF AN INDEX IS GIVEN IN THE FORM R(X:Y) OR R(Y) AT THE BEGINNING OF THE DESCRIPTION. X IS THE LOWER LIMIT AND Y THE UPPER LIMIT. WHEN X IS NOT EXPLICITLY GIVEN, IT IS 1.
"COMMON BLOCK OR SUBROUTINE" GIVES EITHER THE NAME OF THE COMMON BLOCK WITHIN WHICH THE SYMBOL APPEARS OR THE SUBROUTINE (OR MAIN PROGRAM) GLOBAL NAME WHERE IT IS USED IF IT IS NOT IN A COMMON BLOCK.
THE "DESCRIPTION" IS A SHORT, ONE-LINE EXPLANATION OF THE MEANING OF THE VARIABLE.
THE ENTRIES FOLLOW AND ARE IN ALPHABETICAL ORDER.

SYMBOL	RANGE	NATURE	COMMON BLOCK OR SUBROUTINE (GLOBAL SYMBOL)	EXPLANATORY TEXT
A	(2,IT)	C:C	BIG001	ATTENUATION CURVE COEFFICIENT (SLOPE)
ACCM	(JADB,IDAY)	V:PA	BIG006	INITIAL ACCUMULATOR FOR METRICS
ACEV		V:A	BIG006	ACCUMULATES NUMBER OF EVENTS FOR ONE VEHICLE TYPE BY ROADWAY TYPE AND BY PLACE SIZE IN EVENT AND IS USED TO DEFINE IEVB
ACLWP		V:A	BIG006	ACCUMULATES LEVEL-WEIGHTED POPULATION BY EVENT BIN AND DB BAND IN COLECT
ADBL	(21)	C:C	BIG005	DB BIN BOUNDARY LEVELS
ADT	(K,J)	C:C	BIG001	AVERAGE DAILY TRAFFIC FLOW ON A ROADWAY K IN AREA J (SUMMED OVER ALL LANES)
ADTFAC	(I,IDAY)	C:C	TIMSTR	AVERAGE DAILY TRAFFIC FACTOR
ALMAX	(IM)	V:I	TIMSTR	MAXIMUM NOISE LEVEL AT THE EDGE OF THE CLEAR ZONE BY METRIC (NOT USED IN

				CALCULATIONS, JUST FOR DUMPING)
ALREG	(LEVEL,L,M,I)	C:I	BIG002	REGULATION LEVELS. DEFINED IN SERESC
ALWP1		V:I	TABLE	INTERMEDIATE STORAGE FOR OUTPUT
ALWP2		V:I	TABLE	INTERMEDIATE STORAGE FOR OUTPUT
ALWP3		V:I	TABLE	INTERMEDIATE STORAGE FOR OUTPUT
ALO		V:T	BIG001	NOISE LEVEL AT EDGE OF CLEAR ZONE (SEE ALSO DESCRIPTION OF DJKLEV)
ANMET	(IYRN,3,IM)	C:D	BLANK	METRICS PREPARED FOR PRINTED OUTPUT (1 FOR DAY; 2 FOR NIGHT; 3 FOR 24 HOURS)
			COMMON	EQUIVALENCED WITH SLPDSP
AREA	(ID,J)	C:C	BIG001	AREA OF POPULATION REGION ID,J
ARRAY		V:D	TABLE, DBBAND	PRINTED OUTPUT METRIC ARRAY—ARGUMENT FOR A SUBROUTINE
AVDBL		C:C	BIG005	MIDPOINT LEVEL OF EACH DB BIN
BDISP		V:I	TIMSTR	DIFFERENCE BETWEEN EDGE OF CLEAR ZONE LEVEL AND LOWER DB BIN BOUNDARY
BLANK		C:C	SERESC	BLANK CHARACTER
BRATIO		V:I	TIMSTR	RATIO OF BDISP OVER BIN WIDTH (5 DB)
BRCP		V:I	TIMSTR	BAND RATIO AT CUTOFF, PRIMARY
BRCS		V:I	TIMSTR	BAND RATIO AT CUTOFF, SECONDARY
BVPOP	(I)	C:D	BIG001	BASELINE VEHICLE POPULATION BY VEHICLE TYPE
CDISP		V:I	TIMSTR	5.-BDISP
COC	(IM)	C:C	BIG005	METRIC CUTOFF CRITERIA
COMP		V:I	SERESC	COMPARATOR TO SEE IF VEHICLE TYPE HAS CHANGED
CONV2		C:C	MAIN	CONVERSION FACTOR: HALF MILE TO FEET CONVERSION (HALF BECAUSE A ROAD HAS TWO SIDES; SEE EDGE DEFINITION IN MAIN'S DO LOOP LABELED 2301)
CRATIO		V:I	TIMSTR	1.-BRATIO=BAND RATIO (HOW MUCH DOES ALO STICK INTO THIS DB BAND)

CRCP		V:I	TIMSTR	1-BRCP (USUALLY)
CRCS		V:I	TIMSTR	1-BRCS (USUALLY)
CZD	(ID,J,K)	C:C	BIG001	CLEAR ZONE DISTANCE
DBK	(IT)	C:C	BIG001	DB LEVEL AT WHICH KINK IN ATTENUATION CURVE OCCURS
DECK		C:C	SERESC	'*DK ' (CHARACTER STRING INDICATING A NEW BLOCK OF DATA IN NLDICT=VEHICLE NOISE LEVEL DICTIONARY FILE, UNIT 8)
DELBRP		V:I	TIMSTR	DELRP*BRCP
DELBRS		V:I	TIMSTR	DELRS*BRCS
DELCRP		V:I	TIMSTR	DELRP*CRCP
DELCRS		V:I	TIMSTR	DELRS*CRCS
DELRP		V:T	TIMSTR	LAND AREA SIZE REPRESENTATION (UNITLESS) OF THE POPULATION ZONE PARALLELING A ROADWAY AND LYING WITHIN A PRIMARY EXPOSURE DB BIN STRIP
DELRS		V:T	TIMSTR	LAND AREA SIZE REPRESENTATION (UNITLESS) OF THE POPULATION ZONE PARALLELING A ROADWAY AND LYING WITHIN A SECONDARY EXPOSURE DB BIN STRIP
DJKLEV	(J,K,IL,KM)	C:D	BIG005	COMBINED AREA TYPE AND ROADWAY TYPE LEVEL CORRECTION (COMPUTED IN MAIN, DO LOOP 2110). USED FOR CALCULATING ALO TOGETHER WITH DLLEV IN TIMSTR, ACCORDING TO EQS.(E-19) AND (E-20) OF APPENDIX E OF THE THEORETICAL BACKGROUND MANUAL, AS FOLLOWS: THE MAIN PROGRAM CALCULATES (ARRAY SUBSCRIPTS DROPPED FOR CLARITY):

FOR SEL: DJKLEV = -10*ALOG10(X2) + 10*GAMM*ALOG10(DRE/X2),

WHERE DRE = DISTANCE FROM LANE CENTER TO ROADWAY EDGE.
FOR LEQ: DJKLEV = -20*ALOG10(X2) + 10*GAMM*ALOG10(DRE/X2)

NOTE THAT THE FIRST EXCESS ATTENUATION COEFFICIENT GAMM(1) MENTIONED IN APPENDIX E IS ALWAYS ZERO SINCE THE SOUND IS ALWAYS EMITTED FROM A ROADWAY WHICH IS ALWAYS ASSUMED ACOUSTICALLY HARD. EQS.(E-17B) AND (E-18B) FOR SOFT SURFACES ARE THEREFORE NEVER USED IN THE COMPUTER PROGRAM. THE MAIN PROGRAM CALCULATES FURTHER:

FOR SEL: DLLEV = 10*ALOG10(2*THETA*DREF**2/(11/7.5*V))

WHERE 2*THETA IS THE RESULT OF THE INTEGRAL IN EQ.(E-18A), AND 11/7.5 = 1.466 IS THE CONVERSION FACTOR FROM MILES PER HOUR TO FEET PER SECOND.

FOR LEQ: DLLEV = 10*ALOG10(2*THETA*DREF**2/G)

WHERE THE G STEMS FROM EQ.(E-17A).

SUBROUTINE TIMSTR CALCULATES ALQ AS FOLLOWS:

ALQ = ALREG+DJKLEV+DLLEV+SHIFT.

THIS EXPANDS TO:

FOR SEL: ALQ = ALREG +SHIFT +10*GAMM*ALOG10(DRE/X2) +10*ALOG10(2*THETA*(X2/1.466*V))*(DREF/X2)**2),

WHERE: ALREG IS THE NOISE LEVEL AT THE REFERENCE DISTANCE DREF,
SHIFT IS EXTERIOR SKIN BUILDING NOISE REDUCTION,
THE THIRD TERM REPRESENTS THE EXCESS ATTENUATION FROM THE ROAD EDGE TO THE CLEAR ZONE EDGE,

AND THE LAST TERM COMPRISES THREE ITEMS:

2*THETA = INTEGRAL OF EQ.(E-18A),
X2/(1.466*V) = THE 10*ALOG10(D/V) TERM IN EQ.(E-19),
(DREF/X2)**2 = SPREADING LOSS.

FOR LEQ: ALO = ALREG +SHIFT +10*GAMM*ALOG10(DRE/X2)**2 +10*ALOG10(2*THETA*(X2/V)/(G(X2/V)) * (DREF/X2)**2),

WHERE G(X2/V)=T FROM EQ.(E-17A).

DLLEV	(L,KM)	C:D	BIG005	LEVEL SHIFT ARRAY FOR SPEED RANGE (SEE DESCRIPTION OF DJCLEV)
DLPSI	(J,K,IL)	C:D	BIG005	LEVEL SHIFT ARRAY FOR LANES (USED ONLY IF ICONT(7)=1 IN TIMSTR, AND ONLY FOR IM=7 (PEDESTRIANS))
DLWP1		V:I	TIMSTR	INTERMEDIATE STORAGE FOR OUTPUT
DLWP2		V:I	TIMSTR	INTERMEDIATE STORAGE FOR OUTPUT
DLWP3		V:I	TIMSTR	INTERMEDIATE STORAGE FOR OUTPUT
DMINUS		V:I	TIMSTR	-CDISP/2.-FIS(IM) (HALF WIDTH COMPLEMENTING DPLUS)
DNTOT	(JADB,IM)	V:S	TIMSTR	DAY-NIGHT TOTAL OF RESULTS BY METRIC AND BY DB BIN
DPLUS		V:I	TIMSTR	BDISP/2.-FIS(IM) (HALF WIDTH OF EXCESS OF ALO BEYOND LOCAL DB BAND LIMIT)
DRAT			TIMSTR	POPULATION WITHIN A DB BAND = POPULATION NORMALIZED TO X2, TIMES DIFFERENCE OF DISTANCE RATIOS OF DB BAND LIMITS TO X2.
DRATIO	(17,IT,KIND)	C:D	BIG005	LAND AREA SIZE (UNITLESS) OF THE POPULATED ZONE WHICH PARALLELS A ROADWAY AND LIES WITHIN A DB BIN STRIP (DIFFERENCE BETWEEN RATIO VALUES)
DREF		C:C	MAIN	REFERENCE DISTANCE=50 FT

EDGE	(ID,J,K)	C:D	BIG003	CRITERION DISTANCE FOR SECONDARY EXPOSURE CUTOFF
EDGEPZ	(ID,J,K)	C:D	BIG003	EDGE OF POPULATED ZONE
EVPROB	(I,J,K)	C:D	BIG005	PASSBY EVENT PROBABILITY IN THE BASELINE YEAR
FIMP	(80,IFM)	C:I3	BIG005	FRACTION OF PEOPLE EXPOSED WHO ARE IMPACTED (SEE ALSO FIS)
FIS	(IM)	C:C	TIMSTR	NOISE LEVEL AT AND BELOW WHICH FIMP IS ZERO = LOWER BOUND OF PEOPLE RESPONSE TRANSFER FUNCTION. FOR ONE METRIC, ARRAY FIMP CONTAINS 80 FRACTIONAL IMPACT NUMBERS IN 1 DB STEPS. THE NOISE LEVEL GIVEN BY FIS IS JUST 1 DB BELOW THE NOISE LEVEL CORRESPONDING TO THE FIRST FIMP ARRAY ELEMENT FOR ONE METRIC.
FLOMIX	(I,KFLO,JFLO)	C:I3	BIG003	FLOWMIX OF TYPE I VEHICLE
FPAREA	(J,ID)	C:C	BIG001	FRACTION OF AREA WHICH IS POPULATED
FPROAD	(J,K)	C:C	BIG001	FRACTION OF ROADWAY ALONG POPULATED AREAS (AS OPPOSED TO VACANT ONES)
FRTN	(IDAY)	V:I	BIG005	PRODUCT OF PEOPLE DAY/NIGHT ACTIVITY FRACTION AND VEHICLE TYPE DAY/NIGHT TRAFFIC SPLIT
GAMM	(K,J)	C:C	BIG003	EXCESS ATTENUATION COEFFICIENT
GTPOP		V:I	PRINT3	GRAND TOTAL POPULATION
GVTOT	(IYRM)	V:S	BIG002	GRAND VEHICLE TOTAL FOR YEAR IYRC
GVTSUM		V:I	VEHPOP	INTERMEDIATE STORAGE FOR GVTOT
HEAD	(J,2)	V:I	HEADER	A SET OF HEADINGS FOR AREA TYPE TABLES
HEAD	(5,4)	C:CI	PRINT4	SPEED RANGE TEXT STRINGS
HEADER	(2,4)	C:CI	PRINT4	TEXT STRINGS
HIWAY2		C:I3	MAIN	NAMELIST COMPOSED OF MILE, PERCNT, FLOMIX, FIMP
I		V:X	(MANY)	R(14): INDEX, ONE OF 14 VEHICLE TYPES
IAGE		V:I	VEHPOP	CURRENT AGE OF VEHICLES OF A PARTICULAR MODEL YEAR

IBEG	(IM)	C:I4	BIG004	DISPLACEMENT OF THE TEN DB BIN POSITIONS TO BE PRINTED
IBEG		V:D	EVNTDB	DUMMY ARGUMENT FOR AN ELEMENT OF ARRAY IBEG (WHEN CALLING EVNTDB FROM TIMSTR)
IBG		V:I	NORMAL	ABBREVIATION FOR AN ELEMENT OF IBEG
IBIN		V:X	NORMAL	R(15): INDEX TO DB BINS
ICASE		V:D	HEADG	DETERMINES WHICH CASE IS PRINTED: POPULATION, OR ITS GROWTH FACTORS
ICLIP	(X)		TIMSTR	A FORTRAN STATEMENT FUNCTION: THE UPPER AND LOWER EXPOSURE LIMITS OF THE INPUT TO THE FRACTIONAL IMPACT ARRAY (FROM 1 THROUGH 80)
ICONT	(12)	C:I4	BIG004	A CONTROL STRING FOR SPECIFYING PROGRAM BEHAVIOR
ICS		V:D	PRINT4	A "FLAG" TO PRINT HEADING INFORMATION—ARGUMENT FOR A SUBROUTINE
ID		V:X	(MANY)	R(NIDD(J)): INDEX FOR A POPULATION DENSITY REGION WITHIN AN AREA TYPE J
IDAY		V:X	TIMSTR	R(2): DAY-NIGHT INDEX (1 FOR DAY; 2 FOR NIGHT)
IDUMP	(12)	C:I4	BIG004	ARRAY CONTROLLING THE DUMPING OF VARIABLES
IE		V:D	COLECT	R(80): INDEX FOR FIMP ARRAY CORRESPONDING TO NOISE LEVEL
IEQAGE	(IVBD)	C:C	BIG001	EQUIVALENT AGE OF VEHICLES LUMPED INTO REFERENCE YEAR
IEVB	(K,J)	V:X	BIG006	SUBROUTINE EVENTS FILLS THIS ARRAY WITH EVENT BIN NUMBERS TO BE USED LATER IN THE MAIN LOOP STRUCTURES OF SUBROUTINE TIMSTR
IFIMP	(IM)	C:CS	BIG005	SELECTS A METRIC'S FRACTIONAL IMPACT FUNCTION (FIMP)
IFLAG	(IVBD(I))	V:	VEHPOP	VEHICLE BREAKDOWN FLAG
IFM		V:T	BIG006	SELECTS A METRIC'S FRACTIONAL IMPACT FUNCTION (FIMP) THROUGH SELECTOR ARRAY IFIMP
IIM		V:I	NORMAL	MODIFIED IN (RANGE OF THIRD INDEX OF WATDB IS ONLY 5 SINCE IM=5 AND IM=6 ARE IGNORED FOR THE EVENT BIN BY DB BIN TABLE. THEREFORE, IIM=5 FOR PEDESTRIANS INSTEAD OF 7)

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IL	V:X	(MANY)	R(NLANE): INDEX SIGNIFYING A LANE MEMBER
ILDBP	V:I	TIMSTR	NUMBER OF DB BINS COVERED (IPOUT-1)
ILDBS	V:I	TIMSTR	NUMBER OF DB BINS COVERED (ISOUT-1)
ILEV	V:X	(MANY)	COUNTS REGULATIONS (1 TO NLEVEL)
ILIM1	V:I	TIMSTR	INDEX TO BE USED IN ENTERING FIMP TABLES IN CALL TO COLECT (LOWER PART OF LOCAL DB BAND)
ILIM2	V:I	TIMSTR	INDEX TO BE USED IN ENTERING FIMP TABLES IN CALL TO COLECT (UPPER PART OF LOCAL DB BAND)
IM	V:X	(MANY)	R(7): INDEX TO METRICS
IM56	V:	BIG006	NORMALLY 0; UNLESS EVENT BIN BY DB TABLE IS REQUIRED AND METRIC TYPE (IM) IS NOT 5 OR 6; THEN IT IS 1.
INCR		BIG002	(NOT USED)
INOUT (IM)	C:CS	BIG005	SELECTS A METRIC'S APPROPRIATE "SHIFT"
IPACT (IM)	C:CS	BIG005	SELECTS A METRIC'S APPROPRIATE "PACT"
IPOUT	V:I	TIMSTR	A PRIMARY CUTOFF RELATIVE DB BIN POSITION (DEPENDS ON DIFFERENCE BETWEEN PCOLV AND ALO)
IPER (I)	C:CS	BIG003	PERCENT TABLE SELECTOR FOR VEHICLE TYPES
IPLOT (IM)	C:I4	MAIN	FLAG TO OUTPUT DERIVED DATA ONTO PLOTTING UNIT 1
IPRINT (8)	C:I4	BIG004	ARRAY CONTROLLING THE SELECTION OF TABLES TO PRINT
IRCNT (NVT)	V:C	SERESC	COUNTS NUMBER OF REGULATIONS PER VEHICLE TYPE
IRDB	V:X	MAIN, TIMSTR	R(17): INDEX FOR DB BINS
IRYR	V:I2	SERESC	REGULATION YEAR
ISOUT	V:I	TIMSTR	A SECONDARY CUTOFF RELATIVE DB BIN POSITION (DEPENDS ON DIFFERENCE BETWEEN

				SCOLV AND ALO)
ISP		V:C	SERESC	COUNTER FOR SPEED RANGE
ISUB		V:D	HEADER	DETERMINES WHICH SUBROUTINE IS USING HEADER
ISUM		V:I	TIMSTR	TO CHECK WHETHER ANY PLOTS ARE DESIRED
IT		V:T	BIG001	=JWYLE(ID,J). ATTENUATION CURVE SELECTOR
ITABLE		V:C	BIG004	ORDINAL OF TABLE
ITABS		V:C	BIG004	SUB-TABLE NUMBER
IV		V:I	PRINT4	SHORT NOTATION FOR IVMASK(I)
IVAF	(I)	C:CS	BIG001	VAF TABLE SELECTOR
IVBD	(I)	C:CS	BIG001	VEHICLE BREAKDOWN GROUP SELECTOR
IVEH		C:X	SERESC	VEHICLE TYPE
IVGF	(I)	C:CS	BIG001	VGF TABLE SELECTOR
IVMASK	(I)	C:I4	BIG004	VEHICLE MASK. IF MASK BIT OF THE I-TH TYPE IS ZERO, NOISE CONTRIBUTION FROM THAT TYPE IS ZERO
IYR		V:D	IYES	A YEAR IN RELATIVE FORM TO BE CHANGED TO STANDARD FORM OR ANOTHER RELATIVE FORM
IYRN		V:X	(MANY)	R(NYRN) (MAXIMUM=9) THE ORDINAL OF A NET YEAR
I1		V:I	PRINT4	=I+1
J		V:X	(MANY)	R(NAT): INDEX FOR AN AREA TYPE (DETERMINED BY THE PLACE SIZE)
JADB		V:X	TIMSTR	R(20): INDEX TO THE DB BIN POSITIONS (G L O B A L DB BANDS)
JADBO		V:I	TIMSTR	THE DB BIN POSITION AT WHICH COMPUTATION BEGINS (DUE TO ALO) (L O C A L DB BAND)
JCP		V:T	TIMSTR	PRIMARY EXPOSURE CUTOFF DB BIN POSITION (JADBO+IPCUT-1)
JCS		V:T	TIMSTR	SECONDARY EXPOSURE CUTOFF DB BIN POSITION (JADBO+ISCUT-1)
JFLO	(J)	C:CS	BIG003	FLOW MIX TABLE SELECTOR FOR TYPE J
JJ		V:X	UPDATE	JJ RANGES THROUGH RANGE OF JPGF

JMASK	(KS)	C:I4	BIG004	USER OPTION MASK FOR CHOOSING AREA TYPE
JMILE	(J)	V:IA	PRINT3	THE MILEAGE OF ROADWAY IN AREA J, ALL ROADWAY TYPES
JPCUT		V:I	TIMSTR	A PRIMARY CUTOFF DB BIN POSITION
JPGF	(J)	C:CS	BIG001	POPULATION GROWTH FACTOR SELECTOR
JSCUT		V:I	TIMSTR	A SECONDARY CUTOFF DB BIN POSITION
JV		V:I	PRINT4	SHORT NOTATION FOR IVMASK (I+1)
JWYLE	(J,ID)	C:C	BIG001	ATTENUATION CURVE SELECTOR
K		V:X	(MANY)	R(NHT): INDEX FOR A ROADWAY TYPE
KA		V:X	MAIN, TIMSTR	R(NHT): INDEX TO ROADWAY TYPE (USUALLY FOR SECONDARY EXPOSURE)
KDB		V:I	COLECT, EVNTDB, NORMAL	R(11): RELATIVE INDEX TO EVENT BINS
KDBIBG		V:I	NORMAL, TIMSTR	ABSOLUTE INDEX TO EVENT BINS
KFLO	(K)	C:CS	BIG003	FLOW MIX TABLE SELECTOR FOR TYPE K
KIND		V:X	MAIN	R(2): INDEX TO METRIC TYPE (1 FOR SEL; 2 FOR LEQ)
KM		V:X	TIMSTR	R(2): INDEX TO KIND OF METRIC (1 FOR SEL; 2 FOR LEQ)
KMASK	(K)	C:I4	BIG004	ROADWAY TYPE MASK—IF MASK BIT IS ZERO, THE NOISE LEVEL OF THAT ROADWAY TYPE IS SET TO ZERO
KMILE		V:IA	PRINT3	TOTAL MILEAGE OF TYPE K ROADWAYS. ALL U.S.
KOM	(IM)	C:CS	BIG005	KIND OF METRIC: KOM=1 FOR SEL; KOM=2 FOR LEQ
KPER	(K)	C:CS	BIG003	PERCENT TABLE SELECTOR FOR ROADWAY TYPES
KRET		V:D	SERESC	RETURN QUALITY INDICATOR. KRET=0 IS THE NORMAL RETURN

KS		V:X	BIG006	R(NHT): INDEX TO HIGHWAY TYPES
KSJEVB			BIG006	=IEVB(KS,J), EVENT BIN COUNTER
L		V:X	(MANY)	R(NSR): INDEX FOR A SPEED RANGE
LANE	(J,K)	C:C	BIG001	NUMBER OF LANES OF ROADWAY TYPE J,K
LCOUNT		V:I	TIMSTR	COUNTS THE NUMBER OF PASSES THROUGH THE INNERMOST LOOP OF EACH METRIC COMPUTATION
LEQ1DB	(JADB,IYRN)	C:D	TIMSTR	PRINTED OUTPUT OF THE FIRST TEN OF THE TWENTY BINS FROM THE LEQ METRIC
LEQ2DB	(JADB,IYRN)	C:D	TIMSTR	PRINTED OUTPUT OF THE SECOND TEN OF THE TWENTY BINS FROM THE LEQ METRIC
LEVEL		V:X	(MANY)	R(NLEVEL): INDEX TO REGULATION SCENARIOS
LIFE	(IVAF)	C:C	BIG001	NUMBER OF ENTRIES IN VAF TABLE
LIMIT	(20)	C:C	DBBAND, EVNTDB	DB BAND LIMITS (FOR PRINTING PURPOSES)
LLEV	(10)	C:C	DBBAND, EVNTDB	DB BAND NUMBERS (FOR PRINTING PURPOSES)
LMPPXP	(IYRN,3)	V:S	TIMSTR, BLANK COMMON	PRINTED OUTPUT OF THE LEQ EXPOSURE, EQUIVALENCED WITH ANNET
M		V:X	(MANY)	R(4): INDEX FOR AN OPERATING MODE (ACCELERATION, DECELERATION, CRUISE AND IDLE). M=4 (IDLE) NOT USED IN SEM
MDUM		V:D	IYBAS, IYREF	SUBROUTINE VEHPOP(IYRN) (CALLED BY MAIN) SUBSTITUTES MYRB AND MODYR INTO FUNCTION SUBPROGRAMS IYREF(MDUM) AND IYBAS(MDUM) AS APPROPRIATE
METMSK	(IM)	C:I4	BIG004	USER OPTION MASK FOR CHOOSING METRIC TYPES
METRIC	(JADB,IM,IDAY)	V:PA	BIG005	INTERMEDIATE STORAGE OF RESULTS
MILE	(K,J,ID,L)	C:I3	BIG002	MILES OF ROADWAY

MILEJK (J)	V:IA	PRINT3	THE MILEAGE OF ROADWAY IN AREA J, ROADWAY TYPE K	
MLEVEL	V:I	PRINT4	=NLEV(I,M)	
MODMSK (M)	C:I4	BIG004	USER OPTION MASK FOR CHOOSING VEHICLE OPERATING MODES	
MODYR	V:X	PRNT11	A VEHICLE MODEL YEAR	
MSUM	V:IA	PRINT3	TOTAL U.S. ROADWAY MILEAGE	
MYOLD	V:T	VEHPOP	=MYRE(I) EARLIEST SURVIVAL YEAR	
MYR	V:X	BIG001	R(1957-2013): A VEHICLE MODEL YEAR	
MYRB	C:C	BIG002	BASELINE YEAR=1974	
MYRE (I)	V:	BIG001	EARLIEST YEAR FROM WHICH TYPE I VEHICLES SURVIVE	
MYREF (IVBD)	C:C	BIG001	REFERENCE YEAR FOR VEHICLE BREAKDOWN GROUP IVBD	
MYREG (LEVEL,M,I)	C:I5	BIG002	REGULATION YEARS	
MYRN		BIG002	(NOT USED)	
MYRNET (IYRN)	C:I4	BIG002	A NET OF YEARS FOR WHICH THE COMPUTATION IS TO BE DONE	
NADB	C:C	BIG005	RELATED TO THE NUMBER OF INTERNAL DB BIN POSITIONS	
NAT	C:C	BIG002	NUMBER OF AREA TYPES=9	
NEVENT	V:T	TIHSTR, COLECT, EVENTS	NUMBER OF PASSBY EVENTS	
NHT	C:C	BIG002	NUMBER OF ROADWAY TYPE=6=RANGE OF K	
NID	V:	(MANY)	=NIDD(J). NUMBER OF DENSITY REGIONS	
NIDD (J)	C:C	BIG002	NUMBER OF DENSITY REGIONS IN AN AREA TYPE	
NLANE	V:	(MANY)	=LANE(J,K). NUMBER OF LANES	
NLOKM	V:I	SERESC	STRING IDENTIFYING A NOISE LEVEL DATA BLOCK FOR ONE REGULATION FOR ONE VEHICLE, IN NOISE LEVEL DICTIONARY	

NLDKOR		V:I	SERESC	LIKE NLDKNM, BUT READ FROM UNIT 2 (REGULATION INSTRUCTION FILE)
NLEV	(I,M)	C:I5	BIG002	NUMBER OF REGULATION LEVELS
NLEVEL		V:I	(MANY)	=NLEV(I,M) NUMBER OF REGULATION LEVELS
NPMILE	(ID,J)	V:A	BIG001	NUMBER OF POPULATED MILES FOR GIVEN REGION
NPMK	(ID,J,K)	V:A	BIG001	ROADWAY MILES HAVING ADJACENT POPULATION
NSR		C:C	BIG002	NUMBER OF SPEED RANGES=5=RANGE OF L
NTABS		V:	BIG004	NUMBER OF PAGES IN A PRINTED TABLE
NUMS		C:C	PRNT11	FOR NUMBERING COLUMNS IN THE PRINTED TABLE
NVT		C:C	BIG002	NUMBER OF VEHICLE TYPES=14
NYRN		C:I4	BIG002	NUMBER OF YEARS IN YEAR NET
PACT	(IPACT(IM),IDAY)	C:C	BIG005	POPULATION FRACTION WHOSE ACTIVITY RENDERS IT SUBJECT TO A METRIC
PCOLV		V:I	TIMSTR	PRIMARY EXPOSURE CUTOFF LEVEL
PDSPDB	(JADB,IYRN)	V:S	TIMSTR	PRINTED OUTPUT OF THE PEDESTRIAN SPEECH INTERFERENCE METRIC BY DB BIN
PEDSPC	(IYRN,3)	V:S	TIMSTR, BLANK COMMON	PRINTED OUTPUT OF THE PEDESTRIAN SPEECH INTERFERENCE METRIC, EQUIVALENCED WITH ANNET
PERCNT	(M,KPER,IPER)	C:I3	BIG003	PERCENT OF TIME IN EACH OPERATING MODE BY ROADWAY GROUP, BY VEHICLE GROUP
PGF	(JPGF(J))	V:	BIG001	CURRENT POPULATION GROWTH FACTOR
PGF0	(JJ)	C:C	BIG001	INITIAL POPULATION GROWTH FACTORS (=0)
PINC	(IP,JJ)	C:C	UPDATE	THREE SETS OF INTER-EXTRAPOLATORY COEFFICIENTS FOR THE POPULATION GROWTH FACTORS (FOR 5 PLACE SIZE GROUPS)
PLDEN	(ID,J,K,L,IL)	C:CD	BIG005	NORMALIZED POPULATION THAT GOES WITH EACH LANE. IT IS NORMALIZED TO THE CLEAR ZONE

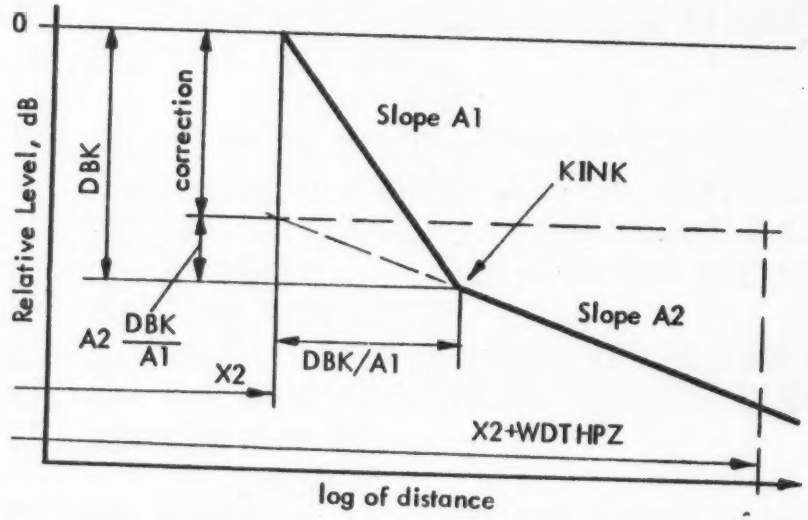
Reproduced from best available copy.

				DISTANCE X2. THIS METHOD ALLOWS USE OF THE RATIO AND DRATIO ARRAYS TO CALCULATE ACTUAL POPULATIONS (SEE PLDPGF AND DRAT).
PLDPGF		V:I	TIMSTR	POPULATION TIMES GROWTH FACTOR. INTERMEDIATE STORAGE OF NORMALIZED POPULATION BEFORE IT IS MULTIPLIED BY DRATIO (DO LOOP 5711). SEE ALSO DRAT.
PNORM		V:I	BIG006	NORMALIZED PERCENTAGE TIME IN EACH OPERATING MODE (ONLY FOR ICONT(10)=1)
POP	(J)	V:IA	BIG002	THE BASELINE POPULATION OF AREA TYPE J
POPDEN	(ID,J)	C:C	BIG002	BASELINE POPULATION DENSITY BY POPULATION REGION
POPFIN		V:I	COLECT	IMPACTED POPULATION (OR: EQUIVALENT POPULATION INCREMENT)
POPID		V:IA	PRINT3	BASELINE POPULATION BY DENSITY REGION
POPINC		V:D	COLECT	THE POPULATION INCREMENT FOR THIS CALL TO COLECT
POPLTN	(ID,J)	C:D	BIG002	BASELINE POPULATION BY POPULATION REGION
PROMPT		V:I	SERESC	TO CHECK IF A *DK LINE WAS ENCOUNTERED IN NOISE LEVEL DICTIONARY (UNIT 8) (SEE ALSO DECK)
RATIO	(18,IT,KIND)	C:I4	BIG005	SIZE (UNITLESS) OF THE POPULATED ZONE WHICH PARALLELS A ROADWAY FOR 18 DB BIN LIMITS, FOR IT=1,2,3 PROPAGATION LAWS FOR POPULATED AREAS, AND KIND=1 FOR SEL AND KIND=2 FOR LEQ.
RCI1		V:I	TABLE	RELATIVE CHANGE OF IMPACT, DAY
RCI2		V:I	TABLE	RELATIVE CHANGE OF IMPACT, NIGHT
RCI3		V:I	TABLE	RELATIVE CHANGE OF IMPACT, 24 HOURS
RDBL	(18)	C:C	BIG005	RELATIVE DB BIN LIMITS. USED IN DETERMINING EXPOSURES IN DB BANDS CONTAINING THE CUTOFFS.
RDBCUT	(ID,J,KS,IL,KM)	C:D	BIG005	SOUND LEVEL CUTOFF CRITERIA FOR SECONDARY EXPOSURE. COMPUTED SIMILARLY TO RDBEDG.
RDBEDG	(ID,J,KS,IL,KM)	C:D	BIG005	RELATIVE SOUND LEVEL AT THE EDGE OF THE POPULATED ZONE (ALO IS ADDED TO OBTAIN CUTOFF LEVEL). THE WAY THIS ARRAY IS COMPUTED BECOMES CLEAR WHEN USING FIG. 2-9 OF THE THEORETICAL BACKGROUND DOCUMENT WHICH

SHOWS THE POINT SOURCE SOUND ATTENUATIONS IN POPULATED ZONES. LET A1 BE THE SLOPE OF THIS FUNCTION ABOVE THE KINK, AND A2 BELOW IT. TAKE AS AN EXAMPLE THE FIRST EQUATION FOR RDEDG COMPUTED IN SECTION 24 OF THE MAIN PROGRAM AND WRITE IT IN MORE EXPLICIT FORM (SUBSCRIPTS DROPPED FOR CLARITY), AND ASSUME THAT WE ARE "BELOW" THE KINK:

RDEDG = (10-A2) *ALOG10 *(X2+WDTHPZ)/X2) - (DBK-(DBK/A1)*A2)

RDEDG IS THE SOUND ATTENUATION FROM THE EDGE OF THE CLEAR ZONE TO THE END OF THE POPULATED ZONE. THE FIRST TERM IS THE SIMPLE SPREADING LOSS. SINCE SEL PROPAGATES LIKE A LINE SOURCE, 10 IS ADDED TO THE SLOPE -A. LEQ PROPAGATES LIKE A POINT SOURCE AND THEREFORE THERE IS NO 10 IN FRONT OF -A. THE SECOND TERM CORRECTS FOR THE PRESENCE OF THE KINK. THE SKETCH EXPLAINS THE EXPRESSION:



REDGE (ID,J,K,IL) C:D BIG003 RATIO OF "EDGE" TO "X2"

REGSCN		:	MAIN	NAMELIST COMPOSED OF ALREG, NLEV, NYREG (SUPERSEDED BY SERESC IMPLEMENTATION)
REMO	(IVBD, IYREF)	C:C,I5	BIG001	BASELINE YEAR VEHICLE GROUP POPULATIONS
REPZ	(ID,J,K,IL)	C:D	BIG003	RATIO OF DISTANCE TO EDGE OF POPULATED ZONE (X2 + WDTHPZ) TO DISTANCE TO EDGE OF CLEAR ZONE (X2)
RNAME	(5)	C:I4	BIG004	RUNNAME AND DATE STRING
RPCOL		V:I	TIMSTR	PRIMARY EXPOSURE CUTOFF LEVEL RELATIVE TO LEVEL AT EDGE OF CLEAR ZONE
RSCOL		V:I	TIMSTR	SECONDARY EXPOSURE CUTOFF LEVEL RELATIVE TO LEVEL AT EDGE OF CLEAR ZONE
SCOLV		V:I	TIMSTR	SECONDARY EXPOSURE CUTOFF LEVEL
SEL1DB	(JADB,IYRN)	C:D	TIMSTR	PRINTED OUTPUT OF THE FIRST TEN FROM THE TWENTY BINS OF THE SEL METRIC
SEL2DB	(JADB,IYRN)	C:D	TIMSTR	PRINTED OUTPUT OF THE SECOND TEN FROM THE TWENTY BINS OF THE SEL METRIC
SELPXP	(IYRN,3)	V:T	TIMSTR	PRINTED OUTPUT OF THE SINGLE EVENT EXPOSURE METRIC, EQUIVALENCED WITH ANNET
SEPPCF	(K)	V:S	TIMSTR	(SECONDARY EVENT PROBABILITY)*(POPULATION GROWTH FACTOR)*(DISTANCE FROM LANE TO FAR END OF CLEAR ZONE)
SEPROB	(ID,J,K,KA,L)	C:D	BIG005	SECONDARY EXPOSURE PROBABILITY
SHIFT	(ID,J,INOUT(IM))	C:C	BIG005	INDOOR AND OUTDOOR LEVEL CORRECTIONS (DUE TO BUILDING SKIN SOUND ATTENUATION)
SLPADB	(JADB,IYRN)	V:S	TIMSTR	PRINTED OUTPUT OF THE SLEEP AWAKENING METRIC BY DB BIN
SLPAWK	(IYRN,3)	V:S	TIMSTR,	PRINTED OUTPUT OF THE SLEEP AWAKENING METRIC, EQUIVALENCED WITH ANNET
			BLANK	
			COMMON	
SLPDDB	(JADB,IYRN)	V:S	TIMSTR	PRINTED OUTPUT OF THE SLEEP DISRUPTION METRIC BY DB BIN
SLPDSP	(IYRN,3)	V:S	TIMSTR,	PRINTED OUTPUT OF THE SLEEP DISRUPTION METRIC, EQUIVALENCED WITH ANNET
			BLANK	
			COMMON	
SPCHIN	(IYRN,3)	V:S	TIMSTR,	PRINTED OUTPUT OF THE INDOOR SPEECH INTERFERENCE METRIC, EQUIVALENCED WITH

			BLANK COMMON	ANNET
SPCOUT	(IYRN,3)	V:S	TIMSTR	PRINTED OUTPUT OF THE OUTDOOR SPEECH INTERFERENCE METRIC, EQUIVALENCED WITH BLANK COMMON ANNET
SPEXDB	(JADB,IYRN)	V:S	TIMSTR	PRINTED OUTPUT OF THE OUTDOOR SPEECH INTERFERENCE BY DB BIN
SPINDB	(JADB,IYRN)	V:S	TIMSTR	PRINTED OUTPUT OF THE INDOOR SPEECH INTERFERENCE BY DB BIN
STOPGF	(J,IYRN)	C:D	BIG002	STORED POPULATION GROWTH FACTOR FOR EACH YEAR
STOPOP	(J)	V:T	PRNT10	TO STORE POPULATIONS TO BE PRINTED
STRING	(6)	C:C	EVNTDB	TEXT STRING
SUM		V:A	(MANY)	GENERALLY USED AS AN ACCUMULATOR
TDAY		V:PA	TIMSTR	TEMPORARY ACCUMULATOR FOR DAYTIME METRICS ("TOTAL FOR DAY")
THETA		C:D	MAIN	1.249 RADIANS=HALF OF 10-DB-DOWN ANGULAR LIMIT FOR "HARD" SITE (EQ. E-17A IN THEORETICAL BACKGROUND MANUAL)
TITLE	(6)	V:D	TABLE, DBBAND	PRINTED TITLE FOR A TABLE—ARGUMENT FOR A SUBROUTINE
-	(4)		EVNTDB	
TNITE		V:PA	TIMSTR	ACCUMULATION OF NIGHTTIME METRICS ("TOTAL FOR NIGHT")
TOTAL		V:I	TIMSTR	24-HOUR TOTAL OF METRICS
V	(L)	C:C	BIG003	AVERAGE VELOCITY OF SPEED RANGES
VAF	(IVBD,26)	C:C	BIG001	FOUR ATTRITION FACTOR TABLES
VBDS	(I)	V:I	PRNT11	LIGHT VEHICLE BREAKDOWN FOR TABLE ENTRIES
VBD74	(I)	C:I4	BIG001	1974 BREAKDOWN RATIOS FOR EACH OF THE 14 VEHICLE TYPES (IN MAIN, VBD(I), FIX, & VEHPOP(IYRN))

VBD77	(I)	C:I4	BIG001	1977 BREAKDOWN RATIOS FOR EACH OF SEVEN VEHICLE TYPES (IN MAIN, FIX, AND VBD(I))
VBD85	(I)	C:I4	BIG001	1985 BREAKDOWN RATIOS FOR EACH OF SEVEN VEHICLE TYPES (IN MAIN, FIX, AND VBD(I))
VBD90	(I)	C:D	BIG001	1990 BREAKDOWN RATIOS FOR EACH OF SEVEN VEHICLE TYPES (IN FIX AND VBD(I))
VEHGF1		:	MAIN	NAMELIST COMPOSED OF VGF, IVGF, REMD, MYREF, VAF, LIFE
VGF	(IYBAS,IVGF)	C:C	BIG001	SIX VEHICLE GROWTH FACTOR TABLES
VINC	(I)	C:D	BIG001	"VBD" INCREMENTS INTERPOLATED (IN FIX) BETWEEN "VDB74" AND "VBD77"
VHL	(I,M,LEVEL)	V:A	BIG001	NUMBER OF VEHICLES IN EACH NOISE LEVEL RANGE. INDEX M COUNTS OPERATIONAL MODES BECAUSE THE PROGRAM IS STRUCTURED SUCH THAT A REGULATION MAY BE ALLOWED TO AFFECT JUST ONE MODE OF OPERATION. HOWEVER, THIS IS NOT AVAILABLE TO THE USER AS AN INPUT OPTION IN VERSION 9R (USING THE SERESC ROUTINE).
VNTDAY		V:T	BIG006	NEVENT*FRTN(1)
VNTDB	(IBIN K,DB,IIM,IYRN)	V:T	BIG006	ARRAY THAT STORES THE VALUES PRINTED IN THE EVENT BIN BY DB BIN TABLE
VNTNIT		V:T	BIG006	NEVENT*FRTN(2)
VNTRNG	(14)	C:C	EVNTDB	TEXT STRINGS FOR ANNOTATING RANGES OF EVENT BINS
VPOP	(I,IYES)	V:A	BIG001	CURRENT YEAR VEHICLE POPULATION BY MODEL YEAR
VPSUM		V:S	VEHPOP	
VTOT	(I,IYRN)	V:S	BIG002	VEHICLE POPULATION BY TYPE FOR EACH YEAR
WDTHPZ	(ID,J)	C:D	BIG003	WIDTH OF THE POPULATED ZONE
WIDTH	(J,K)	C:C	BIG001	WIDTH OF A LANE
XINC	(I)	C:C	BIG001	INTERPOLATION TABLES FOR THE VBD FUNCTION (IN FIX)
XLINE	(18)	V:I4	PRINT1	USED TO REPRODUCE TITLE BLOCK
X2	(J,K,IL)	C:D	BIG001	DISTANCE FROM LANE CENTER TO OUTER CLEAR ZONE EDGE
XX		V:	VEHPOP	TOTAL NUMBER OF TYPE I VEHICLES
YEAR		V:T	(MANY)	A NET YEAR IN STANDARD CALENDAR YEAR NOTATION

YINC (I) C:D BIC001 SECOND INTERPOLATION TABLE FOR THE VBD FUNCTION (IN FIX)

Symbol	Range	Nature	Common Block or Subroutine (Global Symbol)	Explanatory Text
DEGFAC	(IAGE, L, M, LEVEL, NI)	C:C	MAIN	Sound level degradation values
EDEGFC	(IAGE, L, M, LEVEL, NI)	C:D	MAIN	Sound energy degradation values = 10**(DEGFAC/10)
IAGE		V:X V:T	MAIN, VEHPOP	R(26): Current age of vehicles
IDEGFC	(I)	C;C	MAIN	Sound level degradation is a factor for those vehicles in which IDEGFC(I) = 1 and is not a factor for those vehicles in which IDEGFC(I) = 0.
NI		C;D	MAIN	Number of vehicle types that exhibit degradation
PERDEG	(IAGE)	C;C	MAIN	Percent of vehicles exhibiting sound level degradation for all vehicle types in which sound level degradation is a factor

Figure 6-3. Update To GAR Symbol Dictionary

APPENDIX A

Modifications of NRTNEM to Include Vehicle Breakdown Ratios for 1983 for Motorcycles

This appendix describes modifications to the National Roadway Traffic Noise Exposure Model to include vehicle breakdown ratios for the year 1983 for the two motorcycle vehicle types: "unmodified" and "modified," types 13 and 14, respectively. Both GAR and SEM were modified. These modifications were not incorporated in Version 9R of NRTNEM which is documented in the main body of this document.

Logic and coding modifications were required as shown in Table A-1.

Table A-1

List of Modified Files

Which Model	Member Name in Version 9R	Member Name after Modification
GAR	FIX VBD PRNT11	FIX83 VBD83 PRNT1183
SEM	FIXSEM VBDSEM PRT11SEM	FIXSEM83 VBDSEM83 PRT11S83
	Support System Files	
both	RNMEXE9R $RNMSUF.CLIST	WAYNEJCL.CNTL CLSTWAYN.CLIST

Common Block BIG007 was added containing array VBD83 which is analogous in structure to VBD77 and VBD85, except that it pertains only to vehicle types 13 and 14.

Whereas VBD77 and VBD85 are read in the main program, VBD83 is read in subroutine FIX. The remainder of the logic parallels existing logic for VBD77 and VBD85.

Listings of the modified source code members of partitioned dataset TRAWO are shown in Figures A-1 through A-6. Figures A-7 and A-8 show WAYNEJCL.CNTL and CLSTWAYN.CLIST. Note that the latter two were developed sometime before NRTNEM Version 9R (described in the main text of this manual) was frozen on September 29, 1980. In the latter two figures, the relevant sections are highlighted with double vertical parallel bars so that they could be used for editing later version files.

PRT11SEM and PRNT11 generate the vehicle breakdown tables for SEM and GAR, respectively. Examples of the superseded and superseding formats are shown in Tables A-2 and A-3. The purpose of revising the table format was to permit inspection of the model year vehicle breakdowns for vehicle types 13 and 14, which were not previously available.

Using VBD83

VBD83 is on line 14150 of RNMEXE9R (the JCL file) as follows:

```
00014150 VBD83  :0.8800 0.1200
```

"0.8800" is the VBD83 value which applies to vehicle type 13, while the "0.1200" applies to vehicle type 14. The sum of these two VBD83 values must equal "1.0000".

Change of these VBD83 values is performed at sequence 3 or 8 (i.e., "S3" or "S8") of a $RNMSUF terminal session simply by applying the TSO change command to line 14150:

e.g., C 14150 /0.8800 0.12/0.9300 0.07/ (CR)

will result in

```
00014150 VBD83 :0.9300 0.0700
```

```
      SUBROUTINE FIX                                                    00064100
CX FIX      LAST UPDATE:       11/01/78 11:17:05                      00064110
C                               7/31/80   V8D83 ADDED FOR I=13 & 14.
C THIS SUBROUTINE COMPUTES THE NEW ARRAY YINC TO FIX FUNCTION  V8D     00064200
      COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),   00064310
81    2                VINC(7),V8D74(14),V8D77(7),V8D85(7),V8D90(7),     00064320
81    3                A(2,3),D8K(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),     00064330
81    4                PGF0(5),MIDTH(9,6),FPROAD(9,6),ADT(6,9),          00064340
81    5                AREA(4,9),FPAREA(9,4),VPUP(14,26),8VPUP(14),      00064350
81    6                XKINK,A1,A2,B1,B2,ALO,CON0,CON2,IVAF(14),         00064360
81    7                MYREF(6),IV8D(14),LIFE(4),IEQAGE(6),JMYLE(9,4),   00064370
81    8                JPGF(9),LANE(9,6),MYHE(14),IVGF(14),MODYR,IT,II   00064380
      COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),00064500
84    2                ICONT(12)                                         00064510
      COMMON /BIG007/ ZINC(2),V8D83(2)
C                                                                       00064600
      READ(4,500) V8D83
 500  FORMAT(10X,2(F6.3,1X))
      DO 4000 I=13,14
 4000 ZINC(I-12)=(V8D83(I-12)-V8D74(I))/9.0
C FIXES V8D SO THAT CATEGORIES 1 AND 3 DIE AFTER 1990                   00064700
C V8D       LAST UPDATE:  10/18/78  16:14:37                            00064800
C                                                                       00064820
       IF(ICONT(3).EQ.1) GOTO 2000                                      00064840
C                                                                       00064860
          SUM  =              V8D85(2)             + V8D85(4)          00064900
     1                      + V8D85(5) + V8D85(6) + V8D85(7)            00065000
          YINC (1) = -V8D85(1) / 5.0E0                                  00065010
          YINC (3) = -V8D85 (3)/ 5.0E0                                  00065020
          V8D90(1) = 0.0E0                                              00065030
          V8D90(3) = 0.0E0                                              00065040
C                                                                       00065100
C RENORMALIZE THE REST OF YINC ACCORDING TO V8D85                       00065120
C                                                                       00065140
      DO 1000 I = 1,7                                                   00065160
C                                                                       00065180
          XINC(I) = (V8D85(I)-V8D77(I)) / 8.0                           00065240
          YINC(I) = (V8D77(I)-V8D74(I)) / 3.0                           00065260
          IF(I.EQ.1.OR.I.EQ.3) GOTO 1000                                00065410
          V8D90(I) = V8D85(I) / SUM                                     00065420
          YINC(I)  = (V8D90(I) - V8D85(I)) / 5.0E0                      00065430
C                                                                       00065440
1000  CONTINUE                                                          00065450
C                                                                       00065460
           RETURN                                                       00065600
C                                                                       00065620
2000  CONTINUE                                                          00065640
C                                                                       00065660
       DO 3000 I = 1,7                                                  00065660
C                                                                       00065690
          XINC(I) = (V8D85(I)-V8D77(I)) / 8.0                           00065700
          YINC(I) = (V8D77(I)-V8D74(I)) / 3.0                           00065710
          V8D90(I) = V8D85(I)                                           00065730
          YINC(I)  = 0.0E0                                              00065740
C                                                                       00065750
3000  CONTINUE                                                          00065760
      RETURN                                                            00065770
      END                                                               00065780
```

Figure A-1. Contents of CN.EPADYN.S2KC.TRAWO(FIX83)

```
      FUNCTION VBD(I)
CX VBD      LAST UPDATE:       10/18/78 17:37:17                          00062700
C                               7/31/80   VBD83 ADDED FOR I=13 & 14.       00062710
C  THIS FUNCTION  COMPUTES THE CURRENT VEHICLE BREAKDOWN
      COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),      00062800
B1    2                 YINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),      00063100
B1    3                 A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),      00063110
B1    4                 PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),           00063120
B1    5                 AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),       00063130
B1    6                 XXINK,A1,A2,B1,B2,ALO,CON0,CON2,IVAF(14),          00063140
B1    7                 MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),    00063150
B1    8                 JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,II      00063160
      COMMON /BIG007/ ZINC(2),VBD83(2)                                     00063170
C
      IF(I.LE.7.OR.I.GE.13)              GO TO 200                         00063200
      VBD=VBD74(I)                                                         00063300
      RETURN                                                               00063400
200   IF(I.LE.7) GO TO 300
      IF(MYR.LT.1974) VBD=VBD74(I)
      IF(MYR.GE.1974.AND.MYR.LT.1983)
     1        VBD=VBD74(I)+ZINC(I-12)*(MYR-1974)
      IF(MYR.GE.1983)  VBD=VBD83(I-12)
      RETURN
300   IF(MYR.LT.1974)                    VBD = VBD74(I)
      IF(MYR.GE.1974.AND.MYR.LT.1977) VBD = VBD74(I)+YINC(I)*(MYR-1974)    00063440
      IF(MYR.GE.1977.AND.MYR.LT.1985) VBD = VBD77(I)+XINC(I)*(MYR-1977)    00063500
      IF(MYR.GE.1985.AND.MYR.LT.1990) VBD = VBD85(I)+YINC(I)*(MYR-1985)    00063600
      IF(MYR.GE.1990)                    VBD = VBD90(I)                    00063700
      RETURN                                                               00063800
      END                                                                  00063900
                                                                           00064000
```

Figure A-2. Contents of CN.EPADYN.S2KC.TRAWO(VBD83)

```
      SUBROUTINE PRNT11                                                 00123000
C                                                                       00123100
CS PRNT11: CREATED            11/02/78 13:37:53                         00123200
C                                                                       00123300
CS PRNT11 LAST UPDATED:       11/07/78 17:00:55                         00123400
C                              7/31/80  VBD83 ADDED FOR I=13 & 14.
C                                                                       00123500
C PRINTS THE STORED VEHICLE BREAKDOWN FUNCTION FOR EACH YEAR FROM       00123600
C                        1957 TO 2013 IN TWO TABLES                     00123700
       COMMON /BIG001/ VAF(4,26),VGF(40,6),REMU(6,17),XINC(7),YINC(7),  00123800
B1    2                VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),    00123900
B1    3                A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),    00124000
B1    4                PGF0(5),AIDTH(9,6),FPROAD(9,6),ADT(6,9),         00124100
B1    5                AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),     00124200
B1    6                XKINK,A1,A2,B1,B2,ALO,CON0,CON2,IVAF(14),        00124300
B1    7                MYNEF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),  00124400
B1    8                JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,II  00124500
       COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DOBA(16),    00124600
B2    2                POPEXP(9),POPIMP(9),ALRPOP(9),TUPUP(9),          00124700
B2    3                PIMPK(6,9),PEXPK(6,9),ALRPK(6,9),PIMPJ(9,9),     00124800
B2    4                PEXPJ(9,9),ALRPJ(9,9),POPLIN(4,9),STUPGF(9,9),   00124900
B2    5                POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),     00125000
B2    6                MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),          00125100
B2    7                MYRNET(9),MYRB,NTRN,NVT,NAT,NMT,NSR,N1608,       00125200
B2    8                ITABLE                                           00125210
       COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),00125220
B4    2                ICONT(12)                                        00125230
C                                                                       00125310
       DIMENSION VBDS(7)                                                00125320
C                                                                       00125400
       INTEGER NUMS(7) /1,2,3,4,5,6,7/                                  00125500
       REAL*8 SUM814
       DATA SUM814/8H  N/A   /
C                                                                       00125600
       ITABLE=ITABLE+1                                                  00125700
       ITABS=0                                                          00125800
C                                                                       00125900
C SET UP COMPREHENSIVE DO LOOP                                          00126000
C                                                                       00126100
       DO 1000 NHALF=1,2
       IF (NHALF.EQ.1) GO TO 100
       DO 200 INUMS=1,7
 200   NUMS(INUMS)=NUMS(INUMS)+7
 100    DO 1000 MYR = 1957,2013                                         00126200
C                                                                       00126300
           IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)                00126400
     *                                    ITABS = ITABS + 1           00126410
           IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)                00126500
     *             WRITE(6,7000) ITABLE,ITABS,ITABS,RNAME,NUMS         00126510
C                                                                       00126600
           MODYR = MYR                                                  00126610
           SUM = 0.0                                                    00126614
C                                                                       00126620
        DO 1001 INUMS = 1,7                                             00126630
C                                                                       00126640
       I=NUMS(INUMS)
           VBDS(INUMS) = VBD(I)                                         00126650
           IF(NHALF.EQ.1)   SUM = SUM + VBDS(I)                         00126655
C                                                                       00126660
1001    CONTINUE                                                        00126670
C                                                                       00126680
```

Figure A-3. Contents of CN.EPADYN.S2KC.TRAWO(PRNT1183)

```
          WRITE(6,7003)                                                  00126700
        IF(NHALF.EQ.1)       WRITE(6,7002) MYR,VBDS,SUM                 00126800
        IF(NHALF.EQ.2)       WRITE(6,7005) MYR,VBDS,SUM814
          WRITE(6,7004)                                                  00126900
C                                                                        00127000
          IF(MYR.EQ.1975.OR.MYR.EQ.1995.OR.MYR.EQ.2013)                  00127100
     *                              WRITE(6,7001)                       00127110
C                                                                        00127200
1000    CONTINUE                                                         00127300
C                                                                        00127400
        RETURN                                                           00127500
C                                                                        00127600
C  FORMAT STATEMENTS                                                     00127700
C                                                                        00127800
7000    FORMAT('1'/'0   TABLE ',I2,'.',I2,'          VEHICLE BREAKDOWN', 00127900
     *  ' RATIOS FOR 1957-2013.(TABLE ',I2,' )',T110,5A4/'0'/            00128000
L0   *  ' ',91('_')/' ','|',T20,'|',T83,'|',T92,'|'/                     00128010
L1   *  ' |',T20,'|',T71,'****PRNT11',T83,'|',T92,'|'/                   00128100
L2   *  ' ',T8,'VEHICLE'/'+|',T20,'|',T83,'|',T92,'|'/'+',T20,64('_')/   00128200
L3   *  ' ',T8,'TYPE  >',T24,7(I2,7X)/'+|',T20,9('|',8(' '))/           00128300
L3-4 *  '+',T20,64('_')/' |',T20,'|',T83,'|',T92,'|'/                    00128400
L4   *  ' ',T8,'MODEL YEAR',T40,'VEHICLE BREAKDOWN,',                   00128410
L5   *  ' VBD(I).',T85,'SUM'/'+|',T20,'|',T83,'|',T92,'|'/               00128500
L6   *  ' |                V',T20,'|',T83,'|',T92,'|'/'+',91('_'))       00128600
7001    FORMAT(' |',T20,'|',8(8(' '),'|')/'+',91('_'))                   00128800
7002    FORMAT(' ',T15,I4,T21,8(F7.4,2X))                                00128900
7003    FORMAT(' |',T20,'|',8(8(' '),'|'))                               00129000
7004    FORMAT('+|',T20,'|',8(8(' '),'|'))                               00129100
7005    FORMAT(' ',T15,I4,T21,7(F7.4,2X),A7)
        END                                                              00129200
```

Figure A-3 (Concluded)

```
      SUBROUTINE FIX                                                    00064100
C BELONGS TO SINGLE EVENT MODEL
Cx FIX  COMPUTES INTEN=EXTRAPOLATORY ARRAYS FOR FUNCTION V3D            00064120
C  FIX LAST UPDATE:          8/4/80    V8083 ADDED FOR I=13 & 14.
C                                                                       00064130
      COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),   00064310
81    2                VINC(7),V8074(14),V8077(7),V8085(7),V3D90(7),     00064320
81    3                VML(14,4,5),A(2,3),D8K(3),CZD(9,6),PGF(5),        00064330
81    4                PGF0(5),WIDTH(9,6),FPRUAU(9,6),ADT(6,9),          00064340
81    5                AREA(4,9),FPAREA(9,4),VPOP(14,26),dVPOP(14),      00064350
31    6                X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),AL0,IVAF(14),   00064360
81    7                MYREF(6),IV8D(14),LIFE(4),IEQAGE(6),JMYLE(9,4),   00064370
81    8                JPGF(9),LANE(9,6),MYME(14),IVGF(14),MYR,IT,I      00064380
      COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),00064390
84    2               KMASK(6),METMSK(7),ICONT(12),MUDMSK(3),IBEG(7),   00064400
84    3                IPLOT(7),ITABLE,ITABS,NTABS                      00064410
      COMMON /BIG007/ ZINC(2),V8083(2)
C                                                                       00064600
      READ(4,500) V8083
 500  FORMAT(10X,2(Fe.3,1X))
      DO 4000 I=13,14
 4000 ZINC(I-12)=(V8083(I-12)-V8074(I))/9.0
C FIXES V8D SO THAT CATEGORIES 1 AND 3 DIE AFTER 1990                   00064700
C                                                                       00064800
C                                                                       00064820
      IF(ICONT(4).EQ.1) GOTO 2000                                       00064840
C                                                                       00064860
         SUM  =              V8085(2)             + V8085(4)            00064900
     1                     + V8085(5) + V8085(6) + V8085(7)             00065000
         YINC (1) = -V8085(1) / 5.0E0                                   00065010
         YINC (3) = -V8085 (3)/ 5.0E0                                   00065020
         V8090(1) = 0.0E0                                               00065030
         V8090(3) = 0.0E0                                               00065040
C                                                                       00065160
C RENORMALIZE THE REST OF YINC ACCORDING TO V8085                       00065120
C                                                                       00065140
      DO 1000 I = 1,7                                                   00065160
C                                                                       00065180
         XINC(I) = (V8085(I)-V8077(I)) / 8.0                            00065240
         YINC(I) = (V8077(I)-V8074(I)) / 3.0                            00065260
         IF(I.EQ.1.OR.I.EQ.3) GOTO 1000                                 00065414
         V8090(I) = V8085(I) / SUM                                      00065420
         YINC(I)  = (V8090(I) - V8085(I)) / 5.0E0                       00065430
C                                                                       00065440
1000  CONTINUE                                                          00065450
C                                                                       00065460
         RETURN                                                         00065600
C                                                                       00065620
2000  CONTINUE                                                          00065640
C                                                                       00065660
      DO 3000 I = 1,7                                                   00065680
C                                                                       00065690
         XINC(I) = (V8085(I)-V8077(I)) / 8.0                            00065700
         YINC(I) = (V8077(I)-V8074(I)) / 3.0                            00065710
         V8090(I) = V8085(I)                                            00065730
         YINC(I)  = 0.0E0                                               00065740
C                                                                       00065750
3000  CONTINUE                                                          00065760
      RETURN                                                            00065770
C        DEBUG SUBCHK                                                   00065775
      END                                                               00065780
```

Figure A-4. Contents of CN.EPADYN.S2KC.TRAWO(FIXSEM83)

```
      FUNCTION VBD(I)                                                    00062700
C BELONGS TO THE SINGLE EVENT MODEL
CT VBD(I)                      06/28/79 13:44:56                         00062740
C  VBD LAST UPDATE:             8/4/80    VBD83 ADDED FOR I=13 & 14,
CX VBD COMPUTES THE CURRENT VEHICLE BREAKDOWN                            00062760
      COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),    00063100
B1    2                VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),     00063110
B1    3                VML(14,4,5),A(2,3),DBK(3),CZD(9,6),PGF(5),        00063120
B1    4                PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),          00063130
B1    5                AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),      00063140
B1    6                X2(9,6,4),NPMILE(4,9),NPMA(4,9,6),AL0,IVAF(14),   00063150
B1    7                MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JAYLE(9,4),   00063160
B1    8                JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,II     00063170
      COMMON /BIG007/ ZINC(2),VBD83(2)
C
      IF(I.LE.7.OR.I.GE.13)          GO TO 200                           00063200
      VBD=VBD74(I)                                                       00063300
      RETURN                                                             00063400
 200  IF(I.LE.7) GO TO 300
      IF(MYR.LT.1974) VBD=VBD74(I)
      IF(MYR.GE.1974.AND.MYR.LT.1983)
     1      VBD=VBD74(I)+ZINC(I-12)*(MYR-1974)
      IF(MYR.GE.1983)  VBD=VBD83(I-12)
      RETURN
 300  IF(MYR.LT.1974)                VBD = VBD74(I)                      00063440
      IF(MYR.GE.1974.AND.MYR.LT.1977) VBD = VBD74(I)+YINC(I)*(MYR-1974)  00063500
      IF(MYR.GE.1977.AND.MYR.LT.1985) VBD = VBD77(I)+XINC(I)*(MYR-1977)  00063600
      IF(MYR.GE.1985.AND.MYR.LT.1990) VBD = VBD85(I)+YINC(I)*(MYR-1985)  00063700
      IF(MYR.GE.1990)                VBD = VBD90(I)                      00063800
      RETURN                                                             00063900
C        DEBUG SUBCHK                                                    00063910
      END                                                                00064000
```

Figure A-5. Contents of CN.EPADYN.S2KC.TRAWO(VBDSEM83)

```
      SUBROUTINE PRNT11
C BELONGS TO SINGLE EVENT MODEL
CX PRNT11  PRINTS THE STORED VEHICLE BREAKDOWN FUNCTION
C    PRNT11 LAST UPDATE:        8/4/80    VBD83 ADDED FOR I=13 & 14.
C
      COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
81    2                VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
81    3                VML(14,4,5),A(2,3),DBK(3),CZO(9,6),PGF(5),
81    4                PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
81    5                AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
81    6                X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),AL0,IVAF(14),
81    7                MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),
81    8                JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
      COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
82    2                PUPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
82    3                MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
82    4                NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NMT,NSR
C
      COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
84    2                KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
84    3                 IPLOT(7),ITABLE,ITABS,NTABS
C
      DIMENSION VBDS(7)
      INTEGER NUMS(7) /1,2,3,4,5,6,7/
      REAL*8 SUM814
      DATA SUM814/8H  N/A   /
C
      ITABLE=ITABLE+1
      ITABS=0
C
C SET UP COMPREHENSIVE DO LOOP
C
      DO 1000 NHALF=1,2
      IF (NHALF.EQ.1) GO TO 100
      DO 200 INUMS=1,7
 200  NUMS(INUMS)=NUMS(INUMS)+7
 100  DO 1000 MYR = 1957,2013
C
      IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)
     *                                    ITABS = ITABS + 1
      IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)
     *          WRITE(6,7000) ITABLE,ITABS,ITABS,NUMS
C
      MODYR = MYR
      SUM = 0.0
C
      DO 1001 INUMS = 1,7                                              00126630
C                                                                      00126640
      I=NUMS(INUMS)
      VBDS(INUMS) = VBD(I)
      IF(NHALF.EQ.1)   SUM = SUM + VBDS(I)                             00126650
C                                                                      00126655
1001  CONTINUE
C
      WRITE(6,7003)
      IF(NHALF.EQ.1)       WRITE(6,7002) MYR,VBDS,SUM
      IF(NHALF.EQ.2)       WRITE(6,7005) MYR,VBDS,SUM814               00126800
      WRITE(6,7004)
C
      IF(MYR.EQ.1975.OR.MYR.EQ.1995.OR.MYR.EQ.2013)
     *                          WRITE(6,7001)
```

Figure A-6. Contents of CN.EPADYN.S2KC.TRAWO(PRT11S83)

```
C
1000   CONTINUE
C
       RETURN
C
C  FORMAT STATEMENTS
C
7000   FORMAT('1'/'0   TABLE ',I2,'.',I2,'          VEHICLE BREAKDOWN', 00127900
     *  ' RATIOS FOR 1957-2013.(TABLE ',I2,' )'/'0'/
L0   *  ' ',91('_')/' ','|',T20,'|',T83,'|',T92,'|'/
L1   *  ' |',T20,'|',T71,'****PRNT11',T83,'|',T92,'|'/
L2   *  ' ',T8,'VEHICLE'/'+|',T20,'|',T83,'|',T92,'|'/'+',T20,64('_')/
L3   *  ' ',T8,'TYPE  >',T24,7(I2,7X)/'+|',T20,9('|',8(' '))/
L3-4 *  '+',T20,64('_')/' |',T20,'|',T83,'|',T92,'|'/
L4   *  ' ',T8,'MODEL YEAR',T40,'VEHICLE BREAKDOWN,',
L5   *  ' VBD(I),',T85,'SUM'/'+|',T20,'|',T83,'|',T92,'|'/
L6   *  ' |                v',T20,'|',T83,'|',T92,'|'/'+',91('_'))
7001   FORMAT(' |',T20,'|',8(8(' '),'|')/'+',91('_'))
7002   FORMAT(' ',T15,I4,T21,8(F7.4,2X))
7003   FORMAT(' |',T20,'|',8(8(' '),'|'))
7004   FORMAT('+|',T20,'|',8(8(' '),'|'))
7005   FORMAT(' ',T15,I4,T21,7(F7.4,2X),A7)
       END
```

Figure A-6 (Concluded)

```
//&SYSUID JOB (&ACCT,MYLE,,25,,,&COPY,,),&MANNAME,                          00009000
//       TIME=(&TIME,0),NOTIFY=&SYSUID,PRTY=&PRTY                           00009001
/*ROUTE  PRINT HOLD                                                        00009020
//* THIS IS FILE RNMEXEQR (1980 JUL 15)                                    00009950
//*       TO BE EDITED BY $RN4SUF.CLIST                                    00009951
//*LAST UPDATE  8/1/80  V8083 ADDED FOR I=13 & 14.                         00009952
//LKED    EXEC PGM=IEWL,REGION=192K,PARM='LIST'                            00009954
//SYSPRINT DD  SYSOUT=A                                                    00009956
//SYSLMOD  DD  DSN=&&LOD(V59R),DISP=(,PASS),UNIT=SYSDA,                    00009958
//             SPACE=(CYL,(2,1,2),RLSE),DCB=BUFNO=1                        00009960
//SYSUT1   DD  UNIT=SYSDA,SPACE=(1024,(120,120),,,ROUND),                  00009962
//             DCB=BUFNO=1                                                 00009964
//SYSLIB   DD  DSN=SYS1.FTN2LIB,DISP=SHR                                   00009966
//             DD  DSN=SYS1.FORTLIB,DISP=SHR                               00009968
//RNMULIB  DD  DSN=CN.EPADYN.S2KC.BUILD,DISP=SHR                           00009970
//SYSLIN   DD  *                                                           00009972
 INCLUDE RNMOLIB(&MAINP,&BKD)                                             00009975
 INCLUDE RNMOLIB(SERESC,ZERO,                                            C00009985
                 ADD,CONST,DBLEV,FACTOR,FIX,HEADER,IYBAS,IYES,           C00009986
                 IYREF,PRINT1,PRINT2,PRINT3,PRINT4,PRINT5,PRINT6,        C00009987
                 PRINT7,PRINT8,PRINT9,PRNT10,PRNT11,RAD,UPDATE,V3D,      C00009988
                 VEMPOP,XMINUS,                                          C00009989
                 COLECT,DBBAND,DUMPER,EVENTS,EVNTDB,FIXSEM,HEADG,        C00009991
                 HEADRSEM,HEADV,IYBASSEM,IYESSEM,IYREFSEM,NORMAL,        C00009992
                 PRT1SEM,PRT10SEM,PRT11SEM,PRT2SEM,PRT3SEM,PRT4SEM,      C00009993
                 PRT5SEM,TABLE,TIMSTR8S,UPDATSEM,VBOSEM,VEMPOPSEM,       C00009994
                 ZEROI)                                                  00009995
//AUSF  EXEC  PGM=LOADER,PARM='MAP,EP=MAIN,TERM',REGION=&REGN              00010000
//SYSLIN DD DSN=*.LKED.SYSLMOD,DISP=(OLD,DELETE,DELETE)                    00010020
//SYSLOUT DD SYSOUT=A                                                      00010040
//SYSTERM DD SYSOUT=A                                                      00010060
//FT05F001 DD DSN=&SYSPREF.&MYLIB(&REGSCN1),DISP=SHR                       00012500
//FT06F001 DD SYSOUT=A,DCB=(RECFM=V8A,LRECL=137,BLKSIZE=3155)              00012700
//FT01F001 DD DSNAME=&PLINF,DISP=(NEW,PASS),SPACE=(3120,(40,40)),          00012800
//            UNIT=SYSDA,DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)              00012900
//FT02F001 DD DSN=&SYSPREF.&FILU2,DISP=SHR                                 00012930
//FT08F001 DD DSN=CN.EPADYN.S2KC.NLDICT,DISP=SHR                           00012940
//FT03F001 DD DSN=CN.EPADYN.S2KC.&MYLIB(&MILE),DISP=SHR                    00013000
//            DD DSN=CN.EPADYN.S2KC.&MYLIB(PERCNT),DISP=SHR                00013050
//            DD DSN=CN.EPADYN.S2KC.&MYLIB(FIMP),DISP=SHR                  00013100
//            DD DSN=CN.EPADYN.S2KC.&MYLIB(FLOMIX08),DISP=SHR              00013150
//FT04F001 DD *                                                            00013200
IPLOT    :2222222                                                        00013300
IPRINT   :1111100000000                                                  00013400
IDUMP    :000000000000                                                   00013500
KMASK    :111111                                                         00013600
IV4ASK   :00000000000000                                                 00013700
ICONT    :000000000000                                                   00013800
JMASK    :1111111111                                                     00013810
METMSK   :1111001                                                        00013820
MODMSK   :111                                                            00013830
IBEG     :5575005                                                        00013840
V8D74=1  :0.4673 0.1420 0.0167 0.0618 0.1603 0.1514 0.0005               00013900
V8D74=2  :0.6146 0.3854 1.0000 1.0000 1.0000 0.8800 0.1200               00014000
V8D77    :0.4390 0.1324 0.0176 0.0600 0.1400 0.2100 0.0010               00014100
V8D83    :0.8800 0.1200                                                  00014150
V8D85    :0.0700 0.1853 0.0247 0.2300 0.1500 0.1300 0.2100               00014200
                                                                         00014210
NYRN     :09                                                             00014300
MYHNET=1 :1974,1979,1984,1989,1994,1999,2004,2009,2013,1983,     *       00014400
RNAME    :=&RUNNAME:=DATE*                                        *      00014720
```

Figure A-7. Contents of CN.EPADYN.S2KC.WAYNEJCL.CNTL

```
 1.0000E+00 1.4610E+00 2.1345E+00 3.1185E+00 4.5562E+00 6.6565E+0000014722
 3.3866E+01 9.6682E+01 2.7601E+02 7.8798E+02 2.2496E+03 6.4222E+0300014724
 1.8335E+04 5.2343E+04 1.4943E+05 4.2660E+05 1.2179E+06 3.4769E+0600014726
 1.0000E+00 1.6419E+00 2.6957E+00 4.4265E+00 7.2669E+00 3.2152E+0100014728
 8.2768E+01 2.1307E+02 5.4851E+02 1.4120E+03 3.6350E+03 9.3576E+0300014730
 2.4089E+04 6.2014E+04 1.5964E+05 4.1097E+05 1.0580E+06 2.7235E+0600014732
 1.0000E+00 2.1009E+00 4.4139E+00 9.2732E+00 1.9482E+01 4.0931E+0100014734
 8.5992E+01 1.8066E+02 3.7956E+02 7.9743E+02 1.6753E+03 3.5197E+0300014736
 7.3947E+03 1.5536E+04 3.2639E+04 6.8573E+04 1.4407E+05 3.0267E+0500014738
 1.0000E+00 1.3300E+00 1.7690E+00 2.3528E+00 3.1293E+00 4.1621E+0000014740
 6.3158E+00 1.0935E+01 1.8932E+01 3.2777E+01 5.6748E+01 9.8250E+0100014742
 1.7010E+02 2.9450E+02 5.0988E+02 8.8278E+02 1.5284E+03 2.5461E+0300014744
 1.0000E+00 1.4142E+00 2.0000E+00 2.8284E+00 4.0000E+00 5.7225E+0000014746
 1.1298E+01 1.8988E+01 3.1912E+01 5.3633E+01 9.0137E+01 1.5149E+0200014748
 2.5460E+02 4.2788E+02 7.1911E+02 1.2086E+03 2.0312E+03 3.4137E+0300014750
 1.0000E+00 1.5704E+00 2.4662E+00 3.8730E+00 6.0822E+00 9.5516E+0000014752
 1.5000E+01 2.3556E+01 3.6993E+01 5.8095E+01 9.1233E+01 1.4327E+0200014754
 2.2500E+02 3.5335E+02 5.5490E+02 8.7143E+02 1.3685E+03 2.1491E+0300014756
                                                                    00014800
                                                                    00014900
*********************************************************************** 00015000
*                                                                     * 00015100
*       ENVIRONMENTAL PROTECTION AGENCY OF THE UNITED STATES          * 00015200
*              OFFICE OF NOISE ABATEMENT AND CONTROL                  * 00015300
*                                                                     * 00015400
*           NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL             * 00015500
*                 PART2 : SINGLE EVENT MODEL                          * 00015600
*                                                                     * 00015700
*                                                                     * 00015800
*                                                                     * 00016100
*********************************************************************** 00016300
*                                                                     * 00016400
*                                                                     * 00016500
*                    DATE OF RUN : &DATE                              * 00016600
*               NAME OF PROGRAMMER : &MANNAME                         * 00016650
*                    NAME OF RUN : &RUNNAME                           * 00016700
*                   NAME OF PLOT : &PLOTNAME                          * 00016750
*               NAME OF DATAFILE 2 : &SYSPREF..&FILU2                 * 00016760
*               NAME OF DATAFILE 3 : EPADYN.MYLIB(MILE)               * 00016800
*                                  : EPADYN.MYLIB(PERCNT)             * 00016810
*                                  : EPADYN.MYLIB(FIMP)               * 00016820
*                                  : EPADYN.MYLIB(FLOMIX08)           * 00016830
*               NAME OF DATAFILE 5 : MYLIB(&REGSCN1)                  * 00016850
*                                                                     * 00017100
*********************************************************************** 00017200
*                                                                     * 00017300
*                                                                     * 00017400
*                                                                     * 00017500
*                                                                     * 00017600
*                                                                     * 00017700
*                                                                     * 00017800
*                                                                     * 00017900
*                                                                     * 00018000
*********************************************************************** 00018100
//SYSUDUMP  DD SYSOUT=A                                               00018200
//PLKED EXEC PGM=IEWL,REGION=150K,PARM='LIST'                         00018300
//SYSLIB DD DSN=SYS1.FTM2LIB,DISP=SHR                                 00018310
//         DD DSN=SYS1.FORTLIB,DISP=SHR                               00018320
//       DD DSN=SYS2.IPP.LOAD,DISP=SHR                                00018321
//SYSPRINT DD SYSOUT=A                                                00018322
                                                                      00018330
```

Figure A-7 (Continued)

```
//SYSLMOD  DD  DSN=&GOSET(MAIN),DISP=(,PASS),UNIT=SYSDA,                  00018340
//            SPACE=(TRK,(10,10,1),RLSE)                                00018350
//SYSUT1   DD  UNIT=SYSDA,SPACE=(TRK,(10,10),RLSE)                       00018360
//PLLIB  DD  DSN=SYS2.IPP.LOAD,DISP=SHR                                  00018370
//RNMOLIB DD DSN=CN.EPADYN.32KC.BUILD,DISP=SHR                          00018380
//SYSLIN   DD *                                                         00018390
 INCLUDE PLLIB(PPPBUF,PPPBIT,PPPSPC)                                    00018400
 INCLUDE RNMOLIB(RNMPLOT,LOWLIM,UPPLIM)                                 00018405
 INCLUDE RNMOLIB(PLOTTER,SUBPLT)                                        00018410
/*                                                                      00018415
//PLOGO EXEC PGM=*.PLKED.SYSLMOD,COND=(4,LT,LKED),REGION=150K           00018430
//FT01F001 DD DDNAME=SYSIN,DCB=BLKSIZE=80                               00018440
//FT02F001 DD DSN=&IPPTAPE,UNIT=SYSDA,SPACE=(CYL,(2,2),RLSE),           00018445
//     DCB=(RECFM=VSB,LRECL=5160,BLKSIZE=31560),DISP=(NEW,PASS,DELETE)  00018450
//FT05F001  DD  DSN=&PLINF,DISP=(OLD,DELETE)                            00018460
//FT06F001  DD  SYSOUT=A                                                00018470
//FT15F001  DD  SYSOUT=A                                                00018480
//PRPLOT EXEC PGM=PRINTER,COND=(8,LE),REGION=100K                       00018490
//STEPLIB DD DSN=SYS2.IPP.LOAD,DISP=SHR                                 00018500
//FT01F001 DD DDNAME=SYSIN,DCB=BLKSIZE=80                               00018510
//FT02F001 DD DSN=&IPPTAPE,DISP=(OLD,DELETE,DELETE)                     00018515
//FT06F001 DD SYSOUT=A                                                  00018520
//FT15F001 DD  SYSOUT=A                                                 00018530
                                                                        00018540
```

Figure A-7 (Concluded)

```
00010000 /*  NATIONAL ROADWAY NOISE MODEL - COMBINED PROCEDURE*/
00010010 /* THIS IS FILE &RNMSUF.CLIST  AS OF  1980 JUL 21 */
00010100     WRITE >>>>NATIONAL ROADWAY NOISE MODEL VERSION 9R &SYSDATE &SYSTIME
00010200     CONTROL END(ENDE)
00010210     EDIT 'CN.EPADYN.S2KC.RNMEXE9R'
00010300S1: WRITENR S1, VERSION(SEM OR GAR)   :
00010400     READ VERSION
00010410     IF '&VERSION' = '' THEN SET VERSION=SEM
00010500     IF &VERSION=GAR THEN DO
00010600                          C 9975 '*MAINP' 'VARNET9R'
00010650                          C '*BKD' 'BLKDTA'
00010655                           C 9987 'PRINTO, ' 'PRTOV9R,'
00010660                           DEL 9991 9994
00010665                           DEL 18415
00010720                           C 10000 '*REGN' '300K'
00010800                          C 13100 16620 /FIMP/SIGMA0/
00010900                          DEL 13820 13840
00011100                          DEL 14722 14750
00011200                          C 15600 /SINGLE EVENT/GENERAL ADVERSE RESPONSE/
00011210                          C 13700 /000000000000000/111111111111111/
00011220                          C 13800 /0000/0001/
00011250                          C 13400 /00000000/11111111/
00011500                          ENDE
00011510     IF &VERSION=SEM THEN DO
00011515                          C 9975 '*MAINP' 'SEMAIN9R'
00011517                          C '*BKD' '*BKDSEM8S'
00011520                          C 10000 /TERM/TERM,SIZE=400K/
00011521                          C 10000 /*REGN/700K/
00011530                           DEL 9986 9989
00011532                      C 9985 ',ZERO,  ' 'SE,ZERO,'
00011535                           DEL 18410
00011540                          ENDE
00011800S3: WRITE S3, ENTER EDITING COMMANDS.
00011900S4: WRITENR ?
00012000     READ
00012100     READOVAL COMMAND
00012120     VERIFY ON
00012200     IF '&COMMAND'='' THEN GOTO S45
00012300     &SYSOVAL
00012400     GOTO S4
00012420S45: WRITENR S4.5 REGULATION INSTRUCTION FILE:
00012424      READ INSTRF
00012428      VERIFY OFF
00012432      IF '&INSTRF'='' THEY GOTO S45
00012500S5: WRITENR S5. ENTER VEH.GROWTH F. FILE     :
00012600     READ VGF
00012700S6: WRITENR S6. ENTER NET-YEARS(MAX 9):
00012800     READ NETYEAR
00012900     SET NYRN=(&LENGTH(&NETYEAR)+1)/5
00013000     SET NYRN=&STR(0&NYRN)
00013100S7: WRITE S7. ENTER -PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
00013150     WRITE LIMITS :  -XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
00013160     WRITENR                :
00013200     READ MANNAME RUNNAME TIME PRTY JOBID COPY ROOM PLOT
00013400 /* SET DEFAULTS */
00013500     IF '&RUNNAME'   = '' THEN SET RUNNAME=RNMRUN
00013600     IF '&PRTY'      = '' THEN SET PRTY=2
00013700     IF '&COPY'      = '' THEN SET COPY=1
00013800     IF '&MANNAME'   = '' THEN SET MANNAME=&SYSUID
00013900     IF '&TIME'      = '' && &VERSION=SEM THEN SET TIME=20
00014000     IF '&TIME'      = '' && &VERSION=GAR THEN SET TIME=10
```

Figure A-8. Contents of CN.EPADYN.S2KC.CLSTWAYN.CLIST

```
00014050     IF '&JOBID'     = '' THEN SET JOBID=NN
00014060     IF '&ROOM'      = '' THEN SET ROOM=&2CM
00014070     IF '&PLOT'      = '' THEN SET PLOT=NO
00014100 /* REPLACE DATA */
00014200     IF '&NETYEAR' NE '' THEN DO
00014300                              C 14300 /09/&NYRN/
00014400                              14400 MYRNET=1 &NETYEAR
00014500                              ENDE
00014600     SET ACCT=&SUBSTR(11:14,&SYSPREF)
00014700     C 9000 99999 /#ACCT/&ACCT/ ALL
00014750     C 9000 '#SYSUID' '#SYSUID&JOBID'
00014800     C 9000 9001 /#SYSUID/&SYSUID/ ALL
00014900     C 9000 99999 /#SYSPREF/&SYSPREF/ ALL
00015000     C 9000 /,#TLE/,&ROOM/
00015100     C 14720 16600 ?#DATE?&SYSDATE? ALL
00015200     C 14720 16700 /#RUNNAME/&RUNNAME/ ALL
00015300     C 9001 /#TIME/&TIME/
00015400     C 9001 /#PRTY/&PRTY/
00015500     C 9000 /#COPY/&COPY/
00015600     C 9000 16650 /#MANNAME/&MANNAME/
00015700 /*  CHANGE COMPLICATED DATA */
00015800     IF &VERSION=GAR && &PLOT=YES THEN C 13300 /2/1/
00015900     IF &PLOT=YES THEN C 16750 /#PLOTNAME/&RUNNAME/
00016000     IF &PLOT=NO THEN DO
00016100                      DEL 16750
00016200                      DEL 18310 25300
00016300                      C 13300 /2/0/ ALL
00016400                      ENDE
00016500C 12500 /#REGSCN1/&VGF/
00016520C 16850 /#REGSCN1/&VGF/
00016540C 12930 /#FILU2/&INSTRF/
00016560C 16760 /#FILU2/&INSTRF/
00018000     C 15600 17000 / /*/ FIELD(70 70) ALL
00018100S8: WRITE S8, COMMAND:
00018120     VERIFY ON
00018200S9: WRITENR ?
00018300     READ
00018400     READDVAL COMMAND
00018500     IF '&COMMAND'=='' THEN GOTO S10
00018600     &SYSDVAL
00018700     GOTO S9
00018710S10: VERIFY OFF
00018720     IF &VERSION=SEM THEN MOVE 14150 14850
00018730     IF &VERSION=GAR THEN MOVE 14150 14721
00018740    VERIFY ON
00018800     SAVE RNMTEMP.CNTL
00018810     VERIFY OFF
00018900     SUBMIT RNMTEMP.CNTL
00019000     END NOSAVE
00019050WRITENR DELETE SUBMITTED JCL FILE? Y OR N:
00019060READ ANSWER
00019070IF &ANSWER=Y THEN +
00019100     DELETE RNMTEMP.CNTL
00019110ELSE WRITE YOU MUST DELETE RNMTEMP.CNTL BEFORE YOUR NEXT EXEC $RNMSUF.
00019200     EXIT
```

Figure A-8 (Concluded)

Table A-2

Sample of Superseded Tables

TABLE 12. 1 LIGHT VEHICLE [illegible] RATIOS FOR 1957-2015.(TABLE 1)

VEHICLE TYPE >	****PROFILE							
	1	2	3	4	5	6	7	
MODEL YEAR	VEHICLE [illegible], VMDC(I).							SUM
1957	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1958	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1959	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1960	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1961	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1962	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1963	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1964	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1965	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1966	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1967	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1968	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1969	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1970	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1971	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1972	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1973	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1974	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1975	0.4570	0.1389	0.0170	0.0612	0.1535	0.1709	0.0007	1.0000

TABLE 12. 2 LIGHT VEHICLE [illegible] RATIOS FOR 1957-2015.(TABLE 2)

VEHICLE TYPE >	****PROFILE							
	1	2	3	4	5	6	7	
MODEL YEAR	VEHICLE [illegible], VMDC(I).							SUM
1976	0.4494	0.1356	0.0175	0.0606	0.1498	0.1905	0.0008	1.0000
1977	0.4390	0.1324	0.0176	0.0600	0.1400	0.2100	0.0010	1.0000
1978	0.4090	0.1412	0.0180	0.0612	0.1425	0.2062	0.0010	1.0000
1979	0.3790	0.1500	0.0200	0.1025	0.1450	0.2025	0.0010	1.0000
1980	0.3490	0.1588	0.0212	0.1237	0.1475	0.1987	0.0010	1.0000
1981	0.3190	0.1676	0.0225	0.1450	0.1500	0.1950	0.0010	1.0000
1982	0.2890	0.1765	0.0235	0.1662	0.1525	0.1912	0.0010	1.0000
1983	0.2590	0.1853	0.0247	0.1875	0.1550	0.1875	0.0010	1.0000
1984	0.2290	0.1941	0.0259	0.2087	0.1575	0.1837	0.0010	1.0000
1985	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1986	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1987	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1988	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1989	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1990	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1991	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1992	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1993	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1994	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000
1995	0.1990	0.2029	0.0271	0.2300	0.1600	0.1800	0.0010	1.0000

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Table A-2 (Concluded)

TABLE 12. 3 LIGHT VEHICLE [illegible] FOR 1957-2015.(TABLE 3)

VEHICLE TYPE >	****PWRTII							
	1	2	3	4	5	6	7	
MODEL YEAR V	VEHICLE [illegible], VBDII).							SUM
1996	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
1997	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
1998	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
1999	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2000	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2001	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2002	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2003	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2004	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2005	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2006	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2007	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2008	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2009	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2010	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2011	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2012	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000
2015	0.1990	0.2029	0.0271	0.2500	0.1600	0.1000	0.0010	1.0000

Table A-3

Sample of Superseding Tables

TABLE 2. 1 VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 1)

VEHICLE TYPE >	****PRNTII							
	1	2	3	4	5	6	7	
MODEL YEAR I	VEHICLE BREAKDOWN, VBD(I,J).							SUM
1957	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1958	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1959	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1960	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1961	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1962	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1963	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1964	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1965	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1966	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1967	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1968	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1969	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1970	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1971	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1972	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1973	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1974	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1975	0.4579	0.1389	0.0170	0.0612	0.1535	0.1709	0.0007	1.0000

TABLE 2. 2 VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 2)

VEHICLE TYPE >	****PRNTII							
	1	2	3	4	5	6	7	
MODEL YEAR I	VEHICLE BREAKDOWN, VBD(I,J).							SUM
1976	0.4484	0.1356	0.0173	0.0606	0.1468	0.1905	0.0008	1.0000
1977	0.4390	0.1324	0.0176	0.0600	0.1400	0.2100	0.0010	1.0000
1978	0.3929	0.1390	0.0185	0.0812	0.1412	0.2000	0.0271	1.0000
1979	0.3466	0.1456	0.0194	0.1025	0.1425	0.1900	0.0532	1.0000
1980	0.3006	0.1522	0.0203	0.1237	0.1437	0.1800	0.0794	1.0000
1981	0.2545	0.1588	0.0212	0.1450	0.1450	0.1700	0.1055	1.0000
1982	0.2084	0.1655	0.0220	0.1662	0.1462	0.1600	0.1316	1.0000
1983	0.1623	0.1721	0.0229	0.1875	0.1475	0.1500	0.1577	1.0000
1984	0.1161	0.1787	0.0238	0.2087	0.1487	0.1400	0.1839	1.0000
1985	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1986	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1987	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1988	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1989	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1990	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1991	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1992	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1993	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1994	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1995	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000

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Table A-3 (Continued)

TABLE 2. 3 VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 3)

VEHICLE TYPE >	COMPONENTS							
	1	2	3	4	5	6	7	
MODEL YEAR	VEHICLE BREAKDOWN, VBD(I).							SUM
1996	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1997	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1998	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1999	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2000	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2001	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2002	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2003	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2004	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2005	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2006	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2007	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2008	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2009	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2010	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2011	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2012	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
2013	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000

TABLE 2. 4 VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 4)

VEHICLE TYPE >	COMPONENTS							
	8	9	10	11	12	13	14	
MODEL YEAR	VEHICLE BREAKDOWN, VBD(I).							SUM
1957	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1958	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1959	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1960	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1961	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1962	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1963	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1964	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1965	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1966	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1967	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1968	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1969	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1970	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1971	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1972	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1973	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1974	0.0140	0.3854	1.0000	1.0000	1.0000	0.0000	0.1200	N/A
1975	0.0140	0.3854	1.0000	1.0000	1.0000	0.0854	0.1154	N/A

Table A-3 (Concluded)

TABLE 2. 5 VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 5)

VEHICLE TYPE >	****PWHTII							
	8	9	10	11	12	13	18	
MODEL YEAR	VEHICLE BREAKDOWN, VBD(I).							SUM
1956	0.0146	0.3854	1.0000	1.0000	1.0000	0.8911	0.1089	N/A
1957	0.0146	0.3854	1.0000	1.0000	1.0000	0.8967	0.1033	N/A
1958	0.0146	0.3854	1.0000	1.0000	1.0000	0.9022	0.0978	N/A
1959	0.0146	0.3854	1.0000	1.0000	1.0000	0.9078	0.0922	N/A
1960	0.0146	0.3854	1.0000	1.0000	1.0000	0.9133	0.0867	N/A
1961	0.0146	0.3854	1.0000	1.0000	1.0000	0.9189	0.0811	N/A
1962	0.0146	0.3854	1.0000	1.0000	1.0000	0.9244	0.0756	N/A
1963	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1964	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1965	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1966	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1967	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1968	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1969	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1990	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1991	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1992	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1993	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1994	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1995	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A

TABLE 2. 6 VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 6)

VEHICLE TYPE >	****PWHTII							
	8	9	10	11	12	13	18	
MODEL YEAR	VEHICLE BREAKDOWN, VBD(I).							SUM
1996	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1997	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1998	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
1999	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2000	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2001	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2002	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2003	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2004	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2005	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2006	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2007	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2008	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2009	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2010	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2011	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2012	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A
2013	0.0146	0.3854	1.0000	1.0000	1.0000	0.9300	0.0700	N/A

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APPENDIX B

Modifications of the General Adverse Response Model to Incorporate Sound Level Changes with Vehicle Age

The degradation model (DEGFAC) that was written by Wyle Laboratories is part of the VARNET8Q version of the NRTNEM. Since VARNET9R is the updated version of the model, it was necessary to either include the degradation features into VARNET9R or modify DEGFAC to include the new features of VARNET9R. After comparing the two files it was decided to incorporate the necessary changes into DEGFAC. The modifications that were made appear in Figure B-1.

In addition to these modifications, the DEGFAC file that was stored in TRAWO did not contain several lines dealing with the PERDEG variable, which is used to determine the percent of vehicles exhibiting sound level degradation for all vehicle types which are affected by this change in noise level with age. Therefore, five lines that are included in DEGFAC had to be reinserted in TRAWO(DEGFAC). The resulting file is stored in TRAWO as DEDGAC1. Figure B-2 presents a listing of DEGFAC1.

In order to use DEGFAC1, the user must change line 00010600 of CN.EPADYN.S2KC.$RNMSUF.CLIST to:

```
00010600  C 9975  '#MAINP'  'DEGFAC1'
```

VARNET9R is still a member of TRAWO and BUILD, so if degradation features are not desired, it may be used by changing DEGFAC1 back to VARNET9R in this line. At the end of the session, however, DEGFAC1 should be reentered in line 00010600.

```
B4  2      ICONT(12), JMASK(9)                                    00015230 (JMASK(9) added)
C Foll. Stmt.  Added 1980-04-25 by RRACKL                         00016722
           READ(4,999)  JMASK                                     00016724
 999 FORMAT(10X,9I1)                                              00016726
C Following 2 statements inserted by RRACKL 1980-5-5,Subroutine   00025811
C Seresc 'selects regulation scenarios' from the noise level      00025812
C dictionary file on unit 8 according to instruction on unit 2.   00025813
 3000  CALL SERESC(J)                                             00025814
       IF(J.EQ.-1) STOP 1111                                      00025815
3000     READ(5,REGSCN,END=7000)                                  00025900 (deleted)
C Following statement added 1980 -04-25 by RRACKL                 00040702
       IF(JMASK(J).EQ.0) GO TO 5510                               00040704
       CALL PRINT6(IPLOT,IPRINT(6))                               00062150
       IF(IPRINT(6).EQ.1) CALL PRINT6(IPLOT)                      00062190 (deleted)
```

Figure B-1. Modifications Made to Degradation File DEGFAC.
Unless otherwise Noted, All Lines Above Were Inserted

APPENDIX B

Modification of The "National Roadway Traffic Noise Exposure Model" To Incorporate Sound Level Changes With Vehicle Age

DEGFAC1 is a modified version of VARNET9R. It is identical to DEGFAC except for modifications to incorporate the new features of VARNET9R. DEGFAC1 presently contains the IDEGFC, DEGFAC, and PERDEG values, so it is not necessary for the user to input them for each run unless changes in these values are desired.

A copy of DEGFAC1 is presented on Figure B-2.

New Variables Introduced Into the Model by DEGFAC1

- IDEGFC(I)

"IDEGFC(I)"is either 1 (one) or 0 (zero) depending upon whether sound level degradation will be a factor for the particular vehicle under consideration. For the case at hand, degradation is to be considered for only medium duty trucks (I = 8) and heavy duty trucks (I = 9); therefore, IDEGFC(8) = 1 and IDEGFC(9) = 1. IDEGFC(I) = 0 for all the other vehicle types, i.e., for I = 1 through 7, and I = 10 through 14. The user is required to define and input all 14 IDEGFC values.

- NI

"NI" is an index of vehicle type, as is "I," however, where "I" takes on values from 1 (one) through 14, inclusive, NI takes on only as many values as there are vehicle types for which degradation is being considered. Consequently, the DEGFAC1 will define NI = 1 when I = 8, and NI = 2 when I = 9. NI is internally generated, and therefore does not require user attention.

- DEGFAC (IAGE,L,M,LEVEL,NI)

DEGFAC (IAGE,L,M,LEVEL,NI) (hereinafter termed DEGFAC value) is the difference between the actual sound level of the vehicle and the maximum

permissible sound level specified in the noise emission regulation (ALREG). In short, a DEGFAC value is the sound level degradation value.

DEGFAC values are expressed in decibels and are positive, negative, or zero, depending upon whether the vehicle has a sound level respectively greater than, less than, or equal to the ALREG for that vehicle. Twenty-six DEGFAC values are requisite user inputs for each combination of the 5 L's (speed ranges), 4 M's (operation modes), 5 LEVEL's (noise regulations under which the vehicle was manufactured), and (for this case) 2 NI's (vehicle types). This gives one DEGFAC value for each year the vehicle operates, with 26 years being the maximum lifetime of any vehicle considered by the Model. Thus, the DEGFAC array, in this case, is a 26*5*4*5*2 matrix giving a 5200 element array. The user is required to define and input all of this case's 5200 DEGFAC values.

o EDEGFC (IAGE, L, M, LEVEL, NI)

EDEGFC (IAGE, L, M, LEVEL, NI) is sound degradation expressed in terms of sound energy as opposed to DEGFAC (IAGE, L, M, LEVEL, NI) which is expressed in terms of sound level. Each EDEGFC value is defined by a DEGFAC value where

$$EDEGFC = 10^{\frac{DEGFAC}{10}}$$

5200 EDEGFC values, one for each DEGFAC value considered by the case at hand, will be computed within the program. The EDEGFC array is internally generated, and therefore does not require user attention.

o PERDEG (IAGE)

"PERDEG" represents the percentage of vehicles exhibiting a specific sound level degradation. It is assumed the same for all vehicle types with degradation. This percentage depends upon the age of the vehicles under consideration; thus, PERDEG is an array of 26 elements, one element for each of the 26 years of age permitted by the Model. The user is required to define and input all of the 26 PERDEG values.

the need to renumber lines. Fifty-seven lines of DEGFAC values may be keyed into sequence number 16643 through 16699, inclusive. If additional space for DEGFAC values is still needed, the following sequence ranges may be used to obtain another 118 lines:

16781 thorugh 16799 inclusive, and

16841 through 16939, inclusive.

- 25972

This statement converts DEGFAC values from their representation as a decibel <u>difference</u> (DEGFAC) to a sound <u>factor</u> (EDEGFC).

- 45115

This statement causes operation to transfer to the sound level summation process appropriate to the particular vehicle type. Those vehicle types for which IDEGFC = 0 have their sound energy calculated in sequence number 45300 which utilizes VML. VML is a vehicle population tally. This tally is taken without regard to vehicle age; thus, the tally may include vehicles of various ages. Vehicle types having IDEGFC = 0 have sound levels which do not vary with age; therefore their sound energy summation is performed using VML.

Those vehicle types for which DEGFAC values are a consideration (i.e., I = 8 & 9 for the case at hand) have their sound energy calculated in sequence numbers 45652 through 45656 which utilizes VPOP. VPOP is a population tally of vehicles of a single distinct age. Vehicle types having IDEGFC = 1 have sound levels which do vary with age; therefore their sound energy summation is performed using VPOP.

<u>Verification of DEGFAC1 Logic</u>

Verification of DEGFAC1 was performed by comparing the output of VARNET9R using the baseline regulation instruction file (RIFBL) with the DEGFAC1 output that used the same regulations.

Since the degradation features are not used when only baseline regulations are specified, the two runs should have identical noise impact values, which they do. Other comparison runs were also made for VARNET9R and DEGFAC1 using identical input values. Figure B-3 is a printout of noise impact for a DEGFAC1 run. For comparison, a similar printout is given in Figure B-4 for a run using VARNET9R as the main file with identical inputs (see Appendix G of the User's Manual).

This modification of VARNET9R is saved under file-name CN.EPADYN.S2KC.TRAWO(DEGFAC1)

```
C MAIN                                                                  C0010000
C  THIS IS A PROGRAM WHICH CALCULATES THE NUMBER OF PEOPLE              C0010100
C  IMPACTED  BY NOISE ORIGINATING FROM HIGHWAY TRAFFIC.                 C0010200
C                                                                       C0010300
CF  DESCRIPTION.  THIS IS FILE VARNET4                                  C0010400
CF VARNET4 LAST UPDATE:      11/13/78 10:06:16                          C0010410
CC BIGC01  LAST UPDATE:      10/31/78 22:26:23                          C0010420
CC BIGC02  LAST UPDATE:      10/18/78 17:36:26                          C0010430
CC BIGC03  LAST UPDATE:      11/07/78 17:39:27                          C0010440
CC BIGC04  LAST UPDATE:      11/01/78 14:13:45                          C0010450
C FEATURES:    WAS VARNET1. CORRECTION EVERY  YEAR (WITHOUT LINE 32270) C0010500
C               RETAINED MOST WCTAN7 CHARACTERISTICS                    C0010600
C               SOME FEATURES OF WCTAN8B ADDED:E.G ELREG                C0010700
C               LWP DERIVED FROM EXPOSURE IN DB BANDS                   C0010800
C               CHANGE IN LOCAL CRITERION PERMITTED (I.E. ALC(J))       C0010900
C               VARIABLE NET: READS IN A NET OF YEARS                   C0011000
C               NEW SUBROUTINES,CONSOLIDATED COMMON AREAS               C0011100
C                  E.G. BACGRC, VEHPOP                                  C0011110
C               NON-REF SUBROUTINES DELETED: MRF,MBAS,CON               C0011120
C               EXTENSIVE REFORMATTING OF TEXT                          C0011130
C               CONSOLIDATION OF BACGRC INTO VEHPOP                     C0011140
C               DELETION OF VARIABLE GAM                                C0011150
C               MIXDB ARRAY FIXED....HAD UNDEFINED NUMBERS FOR LOW IDB  C0011160
C               RESTRUCTURING OF LOWEST LEVEL IMPACT: NOW COMPUTED IN   C0011170
C                   PRIMARY, ADDITIONAL AND DECREMENTAL SECONDARY EXPO- C0011180
C                   SURE. CLD ARRAYS REMOVED.                           C0011190
C               DO LOOPS WITH SAME END POINT GIVEN SEPARATE ONES        C0011200
C               TESTS FOR ILLEGAL SITUATIONS                            C0011210
C               FULL CONTROL FOR DUMP AND PRINT                         C0011220
C               REGULATION SCENARIO IS NOW ITS OWN SEPARATE FILE        C0011230
C               ARRAY B SPLIT INTO TWO SEPARATE ONES                    C0011240
C               SELECTED ZEROING OF ALEVEL(K,L) TO ISOLATE EFFECT OF    C0011250
C                   ROADWAY TYPES                                       C0011260
C               IF ALEVEL=0, PUT EVERYBODY INTO LOWEST DB BAND          C0011270
C               TEN PRINT SUBROUTINES                                   C0011280
C               NEW VBD METHODOLOGY---VBD74 MOVED INTO FILE4            C0011290
C               VBD IS NOW INTERPOLATED FROM INPUT ARRAYS FOR 77 & 85   C0011300
C               CONV1 AND CONV2 MOVED WHOLLY INTO MAIN PROGRAM          C0011310
C               SKIP FEATURE ADDED                                      C0011320
C               VINC,XINC COMPUTED IN FIX, FIX INVOKED EARLIER          C0011330
C               NEW CONTROL STRING ICONT SKIPS CERTAIN SECTIONS         C0011340
C               NEW KFLG ARRAY                                          C0011350
C               NEW FLOMIX DIMENSIONS                                   C0011360
C               NEW REMO DATA                                           C0011370
C               FULL CURRENT MODEL YEAR POPULATION ON ROAD.             C0011380
C               BLOCK DATA AND OTHER SUBROUTINES MOVED INTO VARNET4A    C0011390
C$                                                                      C0011400
C                                                                       C0011610
C MAIN PROGRAM                                                          C0011620
C                                                                       C0011630
```

Figure B-2. DEGFAC1 Listing

```
C SECTION 1.0    DATA MANAGEMENT                                                00011640
C                                                                               00011650
C SECTION 1.1 COMMON BLOCKS, DIMENSIONS                                         00011660
C                                                                               00011700
      COMMON /BIG001/ VAF(4,26),VGF(40,6),RENO(6,17),XINC(7),YINC(7),           00011900
B1    2                VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD9C(7),           00012000
B1    3                A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),           00012100
B1    4                PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                00012200
B1    5                AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),            00012300
B1    6                XKINK,A1,A2,B1,B2,ALO,CONO,CON2,IVAF(14),               00012400
B1    7                MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),         00012500
B1    8                JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I          00012600
C                                                                               00012700
C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES                           00012800
C                                                                               00012900
      COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),             00013000
B2    2                POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                 00013100
B2    3                PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),            00013200
B2    4                PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STGPGF(9,9),          00013300
B2    5                POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),            00013400
B2    6                MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                 00013500
B2    7                MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N16DB,              00013600
B2    8                ITABLE                                                  00013700
C                                                                               00013800
C END PRINT  COMMON BLOCK                                                       00013900
C                                                                               00014000
      COMMON /BIG003/ GAMM(6,9),ALEVEL(6,5),BONE(4,9,6),BTWO(4,9,6),           00014400
B3    2                XK(4,9,6),FACT2(4,9,6),AML(9,6,5),VKL(14,4,5),          00014500
B3    3                EDGE(4,9),EDGEPZ(4,9,6),WDTHPZ(4,9),PCP(9),V(5),        00014600
B3    4                SIG(5,4,5,14),FLOMIX(14,4,5),PERCNT(4,2,4),             00014700
B3    5                PMYEXP(16,6),PMYLWP(16,6),EXPINC(16,6),                 00014800
B3    6                EXPDEC(16,6),PXPDBK(16),CDBA(9,16),ADBA(16),            00014900
B3    7                DBSUM(16,16),MIXDB(16,16),FACT3(4,9),FACT4(4,9),        00015000
B3    8                JFLO(9),KFLO(6),KPER(6),IPER(14)                        00015200
      COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),        0001522C
B4    2               ICONT(12), JMASK(9)                                       00015230
C                                                                               00015300
C SECTION 1.2    INITIALIZE AND READ IN SOME DATA                               00015400
C                                                                               00015500
      DIMENSION ELREG(5,5,4,14)                                                 00015600
      EQUIVALENCE (ALREG(1),ELREG(1))                                           00015700
      DATA PI/3.1415927/,DREF/50./,CONV1,CONV2/5.83963E4,2.64E3/                00016000
      REAL ATWO(3)/12.564608,12.564708,15.0/,CBAR(3)/2*150.,50./                00016100
      DIMENSION AONE(4,9,6)                                                     00016120
C                                                                               00016400
C SECTION 1.2.1  DEFINE NAMELISTS, READ IN MILEAGE AND TIMESTREAM               00016410
C                NET DATA, AND IPLOT                                            00016420
C                                                                               00016430
      NAMELIST/REGSCN/ ALREG,NLEV,MYREG                                         00016500
      NAMELIST/HIWAY2/ MILE,PERCNT,FLOMIX,SIG                                   00016600
C   THIS COMMENT THROUGH THE NEXT "DATA DEGFAC" STATEMENT ARE PART OF           00016604
```

Figure B-2. (Continued)

```
C   A MODIFICATION TO VARNET DESIGNED TO INCORPORATE VEHICLE SOUND      00016608
      NAMELIST/VEHGF1/ VGF,IVGF,REMO,MYREF,VAF,LIFE                    00016610
C   LEVEL DEGRADATION AS A FUNCTION OF VEHICLE AGE.                    00016612
C   ADDITIONAL RELATED MODIFICATIONS ARE CONTAINED IN SECTIONS          00016616
C   3.0 AND 5.6.3 OF THIS PROGRAM.                                     00016620
      DIMENSION IDEGFC(14),DEGFAC(26,5,4,5,2),EDEGFC(26,5,4,5,2)       00016624
      DIMENSION PERDEG(26)                                             00016626
      EQUIVALENCE (DEGFAC(1),EDEGFC(1))                                00016628
      DATA IDEGFC/7*0,1,1,5*0/                                         00016632
C   THE FOLLOWING ARE THE DEGRADATION FACTORS.  THEY ARE TO BE SUPPLIED 00016636
C   BY THE USER.                                                       00016640
      DATA PERDEG/2*.19,2*.08,22*.19/                                  00016642
      DATA DEGFAC/520*0.,                                              00016650
     12*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*1.5,22*1., 00016654
     578*0.,                                                           00016656
     22*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*2.,22*1., 00016658
     32*1.,2*2.,22*1.,208*0.,                                          00016662
     12*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*1.5,22*1., 00016666
     576*0.,                                                           00016668
     22*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*2.,22*1., 00016670
     32*1.,2*2.,22*1.,208*0.,                                          00016674
     6156C*0.,                                                         00016676
     12*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*1.5,22*1., 00016678
     576*0.,                                                           00016680
     22*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*2.,22*1., 00016682
     32*1.,2*2.,22*1.,208*0.,                                          00016686
     12*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*1.5,22*1., 00016690
     578*0.,                                                           00016692
     22*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*2.,2*3.,22*2.,2*1.,2*2.,22*1., 00016694
     32*1.,2*2.,22*1.,208*0.,                                          00016698
     41040*0./                                                         00016699
          READ(3,HIWAY2)                                               00016700
          READ(4,1000) IPLOT,IPRINT,IDUMP,KMASK,IVMASK,ICONT           00016710
1000  FORMAT(10X,I1/10X,12I1/10X,12I1/10X,6I1/10X,14I1/10X,12I1)       00016720
C  FCLL. STMT. ADDED 1980-04-25 BY RRACKL                             00016722
          READ(4,999) JMASK                                            00016724
 999  FORMAT(10X,9I1)                                                  00016726
          READ(4,1001) VBD74,VBD77,VBD85                               00016730
1001  FORMAT(4(10X,7(F6.3,1X)/))                                       00016740
          READ(4,1002) NYRN,MYRNET                                     00016750
1002  FORMAT(10X,I2/10X,9(I4,1X))                                      00016760
          READ(4,1003) RNAME                                           00016770
1003  FORMAT(10X,5A4)                                                  00016780
C                                                                      00016800
C                                                                      00016810
C SECTION 1.2.5    COMPUTE ARRAYS USED BY FUNCTION VBD                 00016820
C                                                                      00016830
      CALL FIX                                                         00016840
C                                                                      00016940
CSKIP                                                                  00016950
C                                                                      00016960
```

Figure B-2. (Continued)

```
          IF(ICONT(1).EQ.1) GOTO 50                                    00016970
C                                                                      00017000
C COMPUTE VARIOUS CONSTANTS                                            00017010
C                                                                      00017020
      CON0=PI                                                          00017100
      CON2=PI*GAMMA( 1.5E0)/ SQRT( 2.0E0)/GAMMA( 1.25E0)**2            00017150
C                                                                      00017220
C SECTION 1.3   CHECK TIMESTREAM NET POINTS FOR ORDERING AND LIMITS    00017230
C                                                                      00017240
          IF(MYRNET(1).NE.MYRB)WRITE(6,1320)                           00017250
1320      FORMAT(' ','FIRST YEAR IS NOT BASELINE...HAS BEEN RESET')    00017260
          MYRNET(1)=MYRB                                               00017270
          IF (NYRN.EQ.1)     GOTO 22                                   00017272
C                                                                      00017275
  13  DO 1300 IYRN  = 2,NYRN                                           00017280
C                                                                      00017285
          IF(MYRNET(IYRN).LE.MYRNET(IYRN-1))WRITE(6,1310)              00017290
1310      FORMAT(' ','YEARS NOT IN ASCENDING ORDER!!!!!!!')            00017300
C                                                                      00017305
1300  CONTINUE                                                         00017310
C                                                                      00017315
          IF(MYRNET(NYRN).GT.2013)WRITE(6,1330)                        00017320
1330      FORMAT('0'/'0'/'   LAST NET YEAR IS LATER THAN 2013...')     00017330
C                                                                      00017400
C SECTION 2.0    COMPUTE VARIOUS NUMBERS BEFORE TIMESTREAM             00017420
C                                                                      00017440
C                                                                      00017600
C SECTION 2.2   DERIVE DBSUM,CDBA AND MIXDB ARRAYS                     00017620
C                                                                      00017660
  22  DO 2200 IDB    = 2,N16DB                                         00017680
C                                                                      00017690
       DO 2203 J      = 1,NAT                                          00017700
          CDBA(J,IDB) = XMINUS(ALC(J),ADBA(IDB))                       00017720
2203   CONTINUE                                                        00017740
C                                                                      00017750
      DO 2201 JDB    = 2,N16DB                                         00017760
C                                                                      00017770
           DBSUM(IDB,JDB) = ADD(ADBA(IDB),ADBA(JDB))                   00017774
           DDBSUM = DBSUM(IDB,JDB)                                     00017778
           IF(DDBSUM.GT.DDBA(1)) MIXDB(IDB,JDB) = 1                    00017780
           IF(DDBSUM.GT.DDBA(1)) GO TO 2201                            00017790
C                                                                      00017810
      DO 2202  LDB   = 2,N16DB                                         00017820
C                                                                      00017830
           IF(DDBSUM.GE.DDBA(LDB).AND.DDBSUM.LT.DDBA(LDB-1))           00017840
     C        MIXDB(IDB,JDB) = LDB                                     00017860
C                                                                      00017870
2202  CONTINUE                                                         00017880
2201  CONTINUE                                                         00017882
2200  CONTINUE                                                         00017884
C                                                                      00017900
```

Figure B-2. (Continued)

```
C  DUMP CDBA,DBSUM,MIXDB AND CONO,CON2                                    00017920
C                                                                         00017940
         IF(IDUMP(1).EQ.1) CALL PDUMP(CDBA(1,1),CDBA(9,16),5,             00017960
D1   2                         MIXDB(2,2),MIXDB(16,16),4,CONO,CONO,5,     00017980
D1   3                         CON2,CON2,5,DBSUM(1,1),DBSUM(16,16),5,     00017990
D1   4                         VBD74(1),VBD74(14),5,VBD85(1),VBD85(7),5,  00018000
D1   5                         XINC(1),XINC(7),5,VINC(1),VINC(7),5)       00018010
C                                                                         00018500
C SECTION 2.3   THE FOLLOWING BLOCK PROCESSES THE ADT AND DELINEATES      00018600
C               THE POPULATED ZONE ASSOCIATED WITH EACH ID,J AND K.       00018700
C                                                                         00018800
C                                                                         00018900
  23    DO 2300 J      = 1,NAT                                            00019000
C                                                                         00019010
           NID    = NIDD(J)                                               00019100
           POP(J) = 0.0E0                                                 00019200
C                                                                         00019300
        DO 2310 ID     = 1,NID                                            00019400
C                                                                         00019500
           NPMILE = 0                                                     00019600
           FACT3(ID,J)    = FPAREA(J,ID)/AREA(ID,J)/CONV2                 00019800
           FACT4(ID,J)    = POPDEN(ID,J)/CONV2/FPAREA(J,ID)               00019900
           EDGE(ID,J)     = CONV2*SQRT(AREA(ID,J))                        00019910
C                                                                         00020000
        DO 2302 K      = 1,NHT                                            00020100
C                                                                         00020120
           NLANE          = LANE(J,K)                                     00020200
C                                                                         00020300
          DO 2303 L      = 1,NSR                                          00020400
             NPMILE = NPMILE+MILE(K,J,ID,L)*FPROAD(J,K)                   00020500
5            IF(ID.EQ.1)  AML(J,K,L) = ADT(K,J)/V(L)/NLANE                00020700
2303       CONTINUE                                                       00020900
C                                                                         00021500
C SECTION 2.4  COMPUTE DERIVED WYLE CURVE COEFFICIENTS AND X AT KINK      00021600
C                                                                         00021700
           IT             = JWYLE(J,ID)                                  00021800
           XK(ID,J,K)     = CZD(ID,J,K) + CBAR(IT)                       00021840
           AONE(ID,J,K) = DBK(IT) / ALOG10(1. + CBAR(IT)/CZD(ID,J,K))     00021900
           BONE(ID,J,K) = -AONE(ID,J,K) * ALOG10(CZD(ID,J,K))             00021950
           BTWO(ID,J,K) = DBK(IT) - ATWO(IT) * ALOG10(XK(ID,J,K))         00022000
C                                                                         00022240
2302  CONTINUE                                                            00022300
C                                                                         00022400
C SECTION 2.3.1  COMPUTE WDTHPZ(WIDTH OF THE POPULATED ZONE) AFTER        00022410
C                OBTAINING NUMBER OF POPULATED MILES, NPMILE.             00022420
C                COMPUTE POPULATION BY AREA ID,J AND ALSO BY J ALONE      00022430
C                                                                         00022440
           WDTHPZ(ID,J) = AREA(ID,J)*FPAREA(J,ID)/NPMILE*CONV2            00022500
           POPLTN(ID,J) = POPDEN(ID,J)*AREA(ID,J)                         00022600
           POP(J)       = POP(J)+POPLTN(ID,J)                             00022700
C                                                                         00022800
```

Figure B-2. (Continued)

```
2310    CONTINUE                                                        00022840
2300  CONTINUE                                                          00022900
           IF(IDUMP(2).EQ.1) CALL PDUMP(WDTHPZ(1,1),WDTHPZ(4,9),5,      00022910
D2   2          EDGE(1,1),EDGE(4,9),5,BONE(1,1,1),BTWO(4,9,6),5,      00022920
D2   3          XK(1,1,1),XK(4,9,6),5)                                00022930
          IF(IDUMP(3).EQ.1) CALL PDUMP(FACT3(1,1),FACT3(4,9),5,         00022950
D3   2                                FACT4(1,1),FACT4(4,9),5,         00022970
D3   3                                AML(1,1,1),AML(9,6,5),5)         00022990
C                                                                       00023100
C SECTION 2.3.2  COMPUTE CONSTANT ARRAYS IN THE NOISE EQUATION          00023120
C                                                                       00023200
      DO 2304 J      = 1,NAT                                            00023300
      DO 2304     ID = 1,4                                            00023310
      DO 2304 K      = 1,NHT                                            00023400
C                                                                       00023440
           NLANE  = LANE(J,K)                                           00023500
           SUM    = 0.0E0                                               00023600
C                                                                       00023700
      DO 2301 ILANE  = 1,NLANE                                          00023800
C                                                                       00023840
           DR     = WIDTH(J,K) * (ILANE- 0.5E0)                        00023900
           DFCL   = DR + CZD(ID,J,K)                                    00024000
   4       SUM    = SUM + FACTOR(GAMM(K,J),DREF,DFCL)/DFCL             00024100
C                                                                       00024140
2301  CONTINUE                                                          00024200
C                                                                       00024300
       FACT2(ID,J,K) = ALOG10(SUM*PI*DREF**2/CONV1)                     00024400
C                                                                       00024500
C SECTION 2.3.3  COMPUTE THE EDGE OF THE POPULATED ZONE                 00024520
C                                                                       00024540
       EDGEPZ(ID,J,K)  =  CZD(ID,J,K)+WDTHPZ(ID,J)                      00024700
C                                                                       00024710

2304  CONTINUE                                                          00024720
C                                                                       00024800
C DUMP FACT2 ARRAY                                                      00024810
C                                                                       00024820
          IF(IDUMP(4).EQ.1) CALL PDUMP(FACT2(1,1,1),FACT2(4,9,6),5)     00024830
C                                                                       00025110
C SECTION 3.0   READ A REGULATION SCENARIO, AND (FOR THE FIRST LOOP)    00025120
C                       SIG, PERCNT AND FLOMIX                          00025200
C                                                                       00025300
C                                                                       00025400
C CALL PRINT4, PRINTS CONSTANT DATA                                     00025500
C                                                                       00025600
        IF(IPRINT(1).EQ.1)  CALL PRINT1                                 00025610
        IF(IPRINT(2).EQ.1)  CALL PRINT2                                 00025620
        IF(IPRINT(3).EQ.1)  CALL PRINT3                                 00025630
C                                                                       00025800
C   READ A REGULATION SCENARIO                                          00025810
C FOLLOWING 2 STATEMENTS INSERTED BY RRACKL 1980-5-5. SUBROUTINE        00025811
```

Figure B-2. (Continued)

```
C SERESC 'SELECTS REGULATION SCENARIOS' FROM THE NOISE LEVEL                00025812
C DICTIONARY FILE ON UNIT 8 ACCORDING TO INSTRUCTIONS ON UNIT 2.            00025813
 3000 CALL SERESC(J)                                                        00025814
      IF(J.EQ.-1) STOP 1111                                                 00025815
C                                                                           00025820
C   THIS COMMENT THROUGH STATEMENT NUMBER 1110 COMPRISE A MODIFICATION      00025903
C   OF VARNET DESIGNED TO INCORPORATE VEHICLE SOUND LEVEL DEGRADATION       00025906
C   AS A FUNCTION OF VEHICLE AGE.                                           00025909
      READ(5,VEHGF1,END=6666)                                               00025910
 333  FORMAT(1H1,4HIAGE,5X,1HL,4X,1HM,4X,5HLEVEL,4X,2HNI,6X,                00025925
     134HDEGFAC(IAGE,L,M,LEVEL,NI) .NE. 0.0//)                              00025927
 6666 NI=0                                                                  00025936
 666  FORMAT(1H ,5(I6),6X,F6.1)                                             00025937
      WRITE(6,333)                                                          00025938
      DO 1110 I=1,NVT                                                       00025939
      IF(IDEGFC(I).EQ.0)GO TO 1110                                          00025942
      NI=NI+1                                                               00025945
      DO 1100 M=1,4                                                         00025948
      NLEVEL=NLEV(I,M)                                                      00025951
      DO 1100 L=1,NSR                                                       00025954
      DO 1100 LEVEL=1,NLEVEL                                                00025957
      DO 1100 IAGE=1,26                                                     00025960
      IF(DEGFAC(IAGE,L,M,LEVEL,NI).NE.0.)                                   00025962
     1WRITE(6,666)IAGE,L,M,LEVEL,NI,DEGFAC(IAGE,L,M,LEVEL,NI)               00025964
 1033 EDEGFC(IAGE,L,M,LEVEL,NI)=1.2589254**DEGFAC(IAGE,L,M,LEVEL,NI)        00025972
 1100 CONTINUE                                                              00025978
 1110 CONTINUE                                                              00025993
C                                                                           00026000
C CALL PRINT4, TO PRINT THE REGULATION SCENARIO                             00026300
C                                                                           00026320
3002      IF(IPRINT(4).EQ.1)  CALL  PRINT4                                  00026400
          IF(IDUMP(5).EQ.1) WRITE(6,5306) RNAME,REMO,VGF,IVGF,              00026405
     *                                          RNAME,VAF,LIFE,MYREF      00026410
5306  FORMAT( '1#8 DUMP: REMO',T110,5A4/'0'/17(1X,6E12.3/)/                 00026425
D8   4         '0#8 DUMP: VGF(IYRN,IVBD)'/'0'/24(2X,10(F5.3,', ')/)/       00026430
D8   5         '0#8 DUMP: IVGF(I)'/'0'/'  ',14(I1,2X)/                     00026435
D8   6         '1#8 DUMP: VAF(IVAF,IAGE)',T110,5A4/13(9X,4F8.4,9X,4F8.4/)00026440
D8   7        /'0#8 DUMP: LIFE(IVAF)'/'0'/T10,4I3/                        00026445
D8   8         '0#8 DUMP: MYREF(IVBBD)'/'0'/T10,6I8)                       00026450
C                                                                           00026500
C SECTION 4.0   PRE-TIMESTREAM CHORES FOR EACH COMPUTATION                  00026600
C                                                                           00026700
C                                                                           00026800
C SECTION 4.1     COMPUTE ELREG ARRAY FROM REGULATION LEVELS.               00026900
C                                                                           00027000
  41  DO 4101 I       = 1,NVT                                               00027160
      DO 4101 M       = 1,4                                                 00027180
C                                                                           00027190
            NLEVEL = NLEV(I,M)                                              00027200
C                                                                           00027210
      DO 4101 L       = 1,NSR                                               00027220
```

Figure B-2. (Continued)

```
      DO 4101 LEVEL  = 1,NLEVEL                                          00027240
                                                                         00027250
C                                                                        00027260
            ELREG(LEVEL,L,M,I) =  1.0E1**((ALREG(LEVEL,L,M,I)+           00027280
     C         ALOG( 1.0E1)/ 2.0E1*SIG(L,M,LEVEL,I)**2)/ 1.0E1)          00027290
C                                                                        00027300
4101  CONTINUE                                                           00027320
C                                                                        00027340
C  DUMP ELREG ARRAY                                                      00027360
C                                                                        00027380
          IF(IDUMP(6).EQ.1) CALL PDUMP(ELREG(1,1,1,1),ELREG(5,5,4,14),   00027400
                                                                    5)
D6   2                                                                   00029400
C                                                                        00029410
C  SECTION 4.3   ZERO EXPOSURE IN DB BAND ACCUMULATORS                   00029420
C 43                                                                     00029500
  43  DO 4300 IDB    = 1,N16DB                                           00029600
      DO 4300 IYRN   = 1,9                                               00029640
C                                                                        00029700
           ENIDB(IDB,IYRN)= 0.0E0                                        00029800
           EXPDB(IDB,IYRN)= 0.0E0                                        00029900
C                                                                        00030000
4300  CONTINUE                                                           00030100
C                                                                        00030200
C SECTION 4.4  ZEROS EXPOSURE BY HIGHWAY TYPE ARRAYS                     00030300
C                                                                        00030400
      DO 4400 K      = 1,NHT                                           00030500
      DO 4400 IYRN   = 1,9                                             00030600
C                                                                        00030700
           PEXPK(K,IYRN)= 0.0E0                                          00030800
           PIMPK(K,IYRN)= 0.0E0                                          00030900
           ALWPK(K,IYRN)= 0.0E0                                          00031000
C                                                                        00031100
4400  CONTINUE                                                           00031200
C                                                                        00031300
C SECTION 5.0   TIME STREAM LOOP. IYRN=ORDINAL OF A NET YEAR.            00031400
C                                 MYRN=A NET YEAR                        00031500
C                                                                        00032100
  50  DO 5000 IYRN   = 1,NYRN                                            00032200
C                                                                        00032300
        MYRC=MYRNET(IYRN)                                                00032400
C                                                                        00032500
C SECTION 5.1   COMPUTE POPULATION GROWTH FACTOR IN THE CURRENT YEAR     00032600
C                                                                        00032700
        CALL UPDATE(MYRC)                                                00032710
C                                                                        00032720
C DUMP CURRENT PGF                                                       00032730
C                                                                        00032740
        IF(IDUMP(7).EQ.1) CALL PDUMP(IYRN,IYRN,4,PGF(1),PGF(5),5)        00032800
C                                                                        00032900
C SECTION 5.2   COMPUTE THE CURRENT VEHICULAR POPULATION AND MYRE(I),    00033000
C               THE CURRENT EARLIEST YEAR OF SURVIVAL. FOR THE BASE-     00033100
C               LINE YEAR, BACKGROW THE REMO ARRAY AFTER ASSIGNMENT
```

Figure B-2. (Continued)

```
C                                                                       00033200
        CALL VEHPOP(IYRN)                                               00033300
C                                                                       00033400
C DUMP VPOP ARRAY                                                       00033500
C                                                                       00033600
        IF(IDUMP(8).EQ.1) CALL PDUMP(VPOP(1,1),VPOP(14,26),5)           00033700
C                                                                       00033710
CSKIP                                                                   00033720
C                                                                       00033730
        IF(ICONT(1).EQ.1) GOTO 5000                                     00033740
C                                                                       00036600
C SECTION 5.4   COMPUTE NUMBER OF CARS IN EACH NOISE RANGE              00036700
C                                                                       00036800
  54   DO 5401 I      = 1,NVT                                          00036900
C                                                                       00036940
         MYOLD=MYRE(I)                                                  00037000
C                                                                       00037040
      DO 5401 M      = 1,4                                            00037100
C                                                                       00037140
         NLEVEL=NLEV(I,M)                                               00037200
         MYREG(NLEVEL+1,M,I)=2014                                       00037300
C                                                                       00037400
       DO 5402 LEVEL  = 1,5                                             00037500
         VML(I,M,LEVEL)= 0.0E0                                          00037600
5402    CONTINUE                                                        00037700
C                                                                       00037780
C SORT CARS INTO NOISE GROUPS ACCORDING TO THE REGULATION SCENARIO      00037800
C                                                                       00037810
      DO 5403 MODYR  = MYOLD,MYRC                                       00037820
      DO 5404 LEVEL  = 1,NLEVEL                                         00037830
C                                                                       00037840
         IF(MODYR.GE.MYREG(LEVEL,M,I).AND.MODYR.LT.MYREG(LEVEL+1,M,I))00037900
     C     VML(I,M,LEVEL) = VML(I,M,LEVEL)+VPOP(I,IYES(IYREF(MODYR))) 00038000
         IF(MODYR.GE.MYREG(LEVEL,M,I).AND.MODYR.LT.MYREG(LEVEL+1,M,I))00038200
     C                                GO TO 5403                       00038300
C                                                                       00038340
5404   CONTINUE                                                         00038400
5403   CONTINUE                                                         00038700
C                                                                       00038740
5401   CONTINUE                                                         00038800
C                                                                       00038810
C DUMP VML                                                              00038820
C                                                                       00038830
       IF(IDUMP(9).EQ.1) CALL PDUMP(IYRN,IYRN,4,                        00038840
D9   2                              VML(1,1,1),VML(14,4,5),5)          00038850
C                                                                       00038900
C SECTION 5.5   COMPUTE AND SUM EXPOSURE AND IMPACT NUMBERS OVER        00039000
C               J,K,ID,L                                                00039100
C                                                                       00039200
C SECTION 5.5.1  SET UP LAND USE AREA LOOP (J LOOP)                     00039300
C                                                                       00039400
```

Figure B-2. (Continued)

```
            ENI    = 0.0E0                                                  00039500
            PEXP   = 0.0E0                                                  00039600
            PIMP   = 0.0E0                                                  00039700
            POPOP  = 0.0E0                                                  00039800
C                                                                           00039900
      DO 5510 J      = 1,NAT                                                00040000
C                                                                           00040100
            STOPGF(J,IYRN)=PGF(JPGF(J))                                     00040200
            PEXPA  = 0.0E0                                                  00040300
            PIMPA  = 0.0E0                                                  00040400
            ENIA   = 0.0E0                                                  00040500
            CL     = ALC(J)                                                 00040600
            NID    = NIDD(J)                                                00040700
C FOLLOWING STATEMENT ADDED 1980-04-25 BY RRACKL                            00040702
          IF(JMASK(J).EQ.0) GO TO 5510                                      00040704
C                                                                           00040800
C SECTION 5.5.2  SET UP VARIABLE POPULATION DENSITY LOOP (ID LOOP)          00040900
C                                                                           00041000
      DO 5520 ID     = 1,NID                                                00041100
C                                                                           00041200
            IT=JWYLE(J,ID)                                                  00041300
            FACRET=FACT4(ID,J)*PGF(JPGF(J))                                 00041400
C                                                                           00041600
C SECTION 5.5.3  SET UP HIGHWAY TYPE LOOP (FIRST K LOOP)                    00041700
C                                                                           00041800
      DO 5530 K      = 1,NHT                                                00041900
C                                                                           00042000
C             .                                                             00042500
C SECTION 5.5.4  SET UP SPEED RANGE LOOP (L LOOP)                           00042600
C                                                                           00042700
      DO 5530 L      = 1,NSR                                                00042800
C                                                                           00042900
            IF(HILE(K,J,ID,L).EQ.0.OR.(KMASK(K).EQ.0.AND.ICONT(3).EQ.0))    00042910
     *                                        ALEVEL(K,L) = 0.0E0           00042920
            IF(HILE(K,J,ID,L).EQ.0.OR.(KMASK(K).EQ.0.AND.ICONT(3).EQ.0))    00042960
     *                                        GO TO 5530                    00042980
            PLO= 0.0E0                                                      00043000
C                                                                           00043100
C SECTION 5.6    COMPUTE NOISE LEVEL AND IMPACT NUMBERS ASSOCIATED WITH     00043200
C                HIGHWAY TYPE K,L IN AREA ID,J                              00043300
C                                                                           00043400
C SECTION 5.6.1  SUM NOISE CONTRIBUTION FROM ALL VEHICLE TYPES I.           00043500
C   THE FOLLOWING LINE IS A VEHICLE SOUND LEVEL DEGRADATION MOD-            00043505
C   IFICATION DESCRIBED IN SECTION 1.2.1 OF THIS PROGRAM.                   00043510
      NI=0                                                                  00043515
C                                                                           00043600
      DO 5610 I      = 1,NVT                                                00043700
C                                                                           00043800
C   SEQ #43850 IS A DEGFAC MODIFICATION.                                    00043840
      IF(IDEGFC(I).NE.0)NI=NI+1                                             00043850
C CALCULATE USAGE FACTOR AND CURRENT NO OF TYPE I VEHICLES ON ROAD          00043900
```

Figure B-2. (Continued)

```
C                                                                       00044000
C                                                                       00044010
         IF(IVMASK(I).EQ.0)  GOTO 5610                                  00044100
         USAGE=AML(J,K,L)*FLOMIX(I,JFLO(J),KFLO(K))/BVPOP(I)            00044200
C                                                                       00044300
C SECTION 5.6.2  SUM NOISE CONTRIBUTION FROM EACH OPERATING MODE M.     00044400
C                                                                       00044500
      DO 5620 M       = 1,4                                             00044600
C                                                                       00044700
           SUM1= 0.0E0                                                  00044800
           NLEVEL=NLEV(I,M)                                             00044900
C                                                                       00045000
C SECTION 5.6.3  SUM NOISE CONTRIBUTION FROM EACH NOISE RANGE, LEVEL.   00045100
C                                                                       00045105
C   THE FOLLOWING LINE IS A VEHICLE SOUND LEVEL DEGRADATION MOD-        00045110
C   IFICATION DESCRIBED IN SECTION 1.2.1 OF THIS PROGRAM.               00045115
       IF(IDEGFC(I).NE.0)GO TO 5640                                     00045200
       DO 5630 LEVEL  = 1,NLEVEL                                        00045300
           SUM1=SUM1+VML(I,M,LEVEL)*ELREG(LEVEL,L,M,I)                  00045500
5630   CONTINUE                                                         00045600
C                                                                       00045605
C   THE FOLLOWING THROUGH STATEMENT NUMBER 5670 IS A CONTINUATION OF THE00045610
C   MODIFICATION DISCUSSED IN THE COMMENTS CONTAINED IN SECTION 1.2.1 OF00045615
C   THIS PROGRAM.                                                       00045620
      GO TO 5650                                                        00045630
 5640 MYOLD=MYRE(I)                                                     00045635
      DO 5670 MODYR=MYOLD,MYRC                                          00045640
      DO 5660 LEVEL=1,NLEVEL                                            00045645
      IF(.NOT.(MODYR.GE.MYREG(LEVEL,M,I).AND.MODYR.LT.MYREG(LEVEL+1,M,I)00045650
     1      ))GO TO 5660                                                00045651
      IAGE=MYRC-MODYR+1                                                 00045652
      SUM1=SUM1+VPOP(I,IYES(IYREF(MODYR)))*ELREG(LEVEL,L,M,I)           00045653
     1       *EDEGFC(IAGE,L,M,LEVEL,NI)                                 00045654
     2       *PERDEG(IAGE)                                              00045655
     3       +VPOP(I,IYES(IYREF(MODYR)))*(ELREG(LEVEL,L,M,I)            00045656
     4       -PERDEG(IAGE)*ELREG(LEVEL,L,M,I))                          00045670
      GO TO 5670                                                        00045675
 5660 CONTINUE                                                          00045680
 5670 CONTINUE                                                          00045685
C   THE STATEMENT NUMBER '5650' APPEARING IN THE NEXT LINE              00045686
C   IS A VEHICLE SOUND LEVEL DEGRADATION MODIFICATION DESCRIBED IN      00045687
C   SECTION 1.2.1 OF THIS PROGRAM.                                      00045700
 5650      PLO=PLO+SUM1*PERCNT(M,KPER(K),IPER(I))*USAGE                 00046000
C                                                                       00046010
5620  CONTINUE                                                          00046100
5610  CONTINUE                                                          00046200
C                                                                       00046300
C SECTION 5.6    CONTINUED. COMPUTE PLO AND ALO FROM SUM                00046400
C                                                                       00046500
           IF(PLO.EQ. 0.0E0)ALEVEL(K,L)= 0.0E0                          00046600
           IF(PLO.NE. 0.0E0)ALEVEL(K,L)= 10.*(ALOG10(PLO)+FACT2(ID,J,K))00046610
           IF(ALEVEL(K,L).GT.DDBA(1)) WRITE(6,5532) K,L,ALEVEL(K,L)
```

Figure B-2. (Continued)

```
5532       FORMAT(' ','ALEVEL IS TOO HIGH...K= ',I2,' L= ',I2,' ALO=',  00046620
     C        F10.3)                                                     00046630
C                                                                       00046700
5530  CONTINUE                                                          00046900
C                                                                       00047000
C                                                                       00047010
C DUMP ALEVEL                                                           00047020
C                                                                       00047030
         IF(IDUMP(10).EQ.1) CALL PDUMP(IYRN,IYRN,4,J,J,4,ID,ID,4,       00047040
D10  2                                    ALEVEL(1,1),ALEVEL(6,5),5)    00047050
C                                                                       00047100
C SECTION_5.7  COMPUTATION OF SECONDARY EXPOSURE FOR THE BASELINE YEAR  00047200
C                                                                       00047300
C                                                                       00047400
C SECTION 5.7.1  FIRST COMPUTE DETAILED EXPOSURE IN DB BANDS            00047500
C                                                                       00047600
      DO 5713 K       = 1,NHT                                           00047700
C                                                                       00047740
            B1      = BONE(ID,J,K)                                      00047800
            B2      = BTWO(ID,J,K)                                      00047900
            XKINK   = XK(ID,J,K)                                        00048000
            A1      = AONE(ID,J,K)                                      00048100
            A2      = ATWO(IT)                                          00048200
C                                                                       00048300
       DO 5728 IDB     = 1,N16DB                                        00048400
C                                                                       00048440
            PMYEXP(IDB,K)     = 0.0E0                                   00048500
            PMYLWP(IDB,K)     = 0.0E0                                   00048600
            EXPINC(IDB,K)     = 0.0E0                                   00048700
            EXPDEC(IDB,K)     = 0.0E0                                   00048710
            PXPDBK(IDB)       = 0.0E0                                   00048720
C                                                                       00048740
5728   CONTINUE                                                         00048800
C                                                                       00048900
        IF(ICCNT(3).EQ.1.AND.KMASK(K).EQ.0)  GO TO 5713                 00048920
C                                                                       00048940
         DO 5714 L       = 1,NSR                                        00049000
C                                                                       00049040
            ALO     = ALEVEL(K,L)                                       00049100
          IF(ALO.LE. 0.0E0)  PXPDBK(16) = PXPDBK(16) +                  00049200
     C             WDTHPZ(ID,J)*MILE(K,J,ID,L)*FPROAD(J,K)*FACRET       00049210
          IF(ALO.LE. 0.0E0)  GO TO 5714                                 00049220
            IDBFLG = 0                                                  00049300
            DBEDGE = DBLEV( EDGEPZ(ID,J,K))                             00049310
C                                                                       00049340
         DO 5715 IDB     = 2,N16DB                                      00049400
C                                                                       00049440
            IF (DDBA(IDB).GE.ALO) GO TO 5715                            00049500
            IF (IDBFLG.NE.0)       GO TO 5717                           00049600
            DBMEAN      = (AMAX1(DDBA(IDB),DBEDGE)+ALO)/ 2.0E0          00049700
            XLO         = CZD(ID,J,K)                                   00049800
```

Figure B-2. (Continued)

```
            IDBFLG      = 1                                                  00049900
            GO TO 5716                                                       00050000
C                                                                            00050040
5717        XLO         = XUP                                                00050100
            IF(DDBA(IDB).LT.DBEDGE) DBMEAN = (DBEDGE+DDBA(IDB-1))/ 2.0E000050200
            IF(DDBA(IDB).GE.DBEDGE) DBMEAN = ADBA(IDB)                       00050220
5716        XUP         = AMIN1(RAD(DDBA(IDB)),EDGEPZ(ID,J,K))               00050300
            POPINC      = FACRET*FPROAD(J,K)*(XUP-XLO)*MILE(K,J,ID,L)        00050400
                                  PXPDBK(IDB) = PXPDBK(IDB)+POPINC           00050500
            IF(DDBA(IDB).GE.CL)  PMYEXP(IDB,K) = PMYEXP(IDB,K)+POPINC        00050600
            IF(DDBA(IDB).GE.CL)  PMYLWP(IDB,K) = PMYLWP(IDB,K)+              00050700
     C                                    POPINC * (DBMEAN-CL) / 2.0E1      00050800
            IF(XUP.EQ.EDGEPZ(ID,J,K))  GO TO 5714                            00051100
C                                                                            00051140
5715      CONTINUE                                                           00051200
5714      CONTINUE                                                           00051300
C                                                                            00051310
CSKIP                                                                        00051320
C                                                                            00051330
       IF(ICONT(2).EQ.1)  GOTO 5713                                          00051340
C                                                                            00051400
C SECTION 5.7.2  COMPUTATION OF EXTRA IMPACT DUE TO SECONDARY EXPOSURE       00051500
C                                                                            00051540
C                                                                            00051800
      DO 5720 KP      = 1,NHT                                                00051900
C                                                                            00051940
            B1      = BONE(ID,J,KP)                                          00052000
            A1      = AONE(ID,J,KP)                                          00052010
            B2      = BTWO(ID,J,KP)                                          00052100
            XKINK   = XK(ID,J,KP)                                            00052200
C                                                                            00052240
      DO 5721 IDB     = 2,N16DB                                              00052300
C                                                                            00052340
          IF(PXPDBK(IDB).EQ. 0.0E0)     GO TO 5721                         00052400
          Y       = ADBA(IDB)                                                00052500
C                                                                            00052540
      DO 5722 L       = 1,NSR                                                00052600
C                                                                            00052640
          ALO     = ALEVEL(KP,L)                                             00052700
          IF(ALO.LE. 0.0E0.OR.CDBA(J,IDB).GE.ALO)   GO TO 5722               00052800
          DBEDGE = DBLEV(EDGE(ID,J))                                         00052900
          IF(DBEDGE.GE.ALO) WRITE(6,5790) IYRN,J,ID,K,KP,DBEDGE,A1,A2,       00052910
     C                                    B1,B2,ALO,ALO                     00052920
5790      FORMAT(' ',I4,4I3,1X,7F10.3)                                       00052930
          IDBFLG = 0                                                         00053000
C                                                                            00053040
      DO 5723 JDB     = 2,N16DB                                              00053100
C                                                                            00053140
          IF(IDBFLG.NE.0)           GO TO 5724                               00053200
          IF(DDBA(JDB).GE.ALO)     GO TO 5723                                00053300
          XLO     = CZD(ID,J,KP)                                             00053400
```

Figure B-2. (Continued)

```
      IDBFLG = 1
      GO TO 5726
C
5724  XLO    = XUP
5726  IF(Y.LT.CL)  DBLO = AMAX1(CDBA(J,IDB),DDBA(JDB),DBEDGE)
      IF(Y.GE.CL)  DBLO = AMAX1(DDBA(JDB),DBEDGE)
      XUP    = RAD(DBLO)
      DELEXP = (XUP-XLO) * MILE(KP,J,ID,L) * PXPDBK(IDB)
      EXPINC(MIXDB(IDB,JDB),K) = EXPINC(MIXDB(IDB,JDB),K)+DELEXP
      IF(Y.GE.CL)  EXPDEC(IDB,K) = EXPDEC(IDB,K)-DELEXP
      IF(DBLO.LE.DBEDGE.OR.(Y.LT.CL.AND.DBLO.LE.CDBA(J,IDB)))
     C                                GO TO 5722
C
5723  CONTINUE
5722  CONTINUE
5721  CONTINUE
5720  CONTINUE
5713  CONTINUE
C
C SECTION 5.8   DERIVE ROW AND COLUMN SUMS FROM DETAILED MATRICES
C
      DO 5727 IDB    = 1,N16DB
      DO 5727 K      = 1,NHT
C
         EXPNET = PMYEXP(IDB,K)+(EXPINC(IDB,K)+EXPDEC(IDB,K))*
     C                                FACT3(ID,J)
         ENINET = PMYLWP(IDB,K)+(EXPINC(IDB,K)+EXPDEC(IDB,K))*
     C              FACT3(ID,J)*(ADBA(IDB)-CL)/ 2.0E1 * FI(J)
C
         EXPDB(IDB,IYRN) = EXPDB(IDB,IYRN) + EXPNET
         ENIDB(IDB,IYRN) = ENIDB(IDB,IYRN) + ENINET
C
         PEXPK(K,IYRN)   = PEXPK(K,IYRN) +   EXPNET
         PIMPK(K,IYRN)   = PIMPK(K,IYRN) +   EXPNET * FI(J)
         ALWPK(K,IYRN)   = ALWPK(K,IYRN) +   ENINET
C
         PEXPA           = PEXPA + EXPNET
         PIMPA           = PIMPA + EXPNET * FI(J)
         ENIA            = ENIA  + ENINET
C
5727    CONTINUE
C
C DUMP DETAILED IMPACT
C
      IF(IDUMP(11).EQ.1)  CALL PDUMP( IYRN,IYRN,4,J,J,4,ID,ID,4,
D11  2        EXPINC(1,1),EXPINC(16,6),5,EXPDEC(1,1),EXPDEC(16,6),5,
D11  3        PMYLWP(1,1),PMYLWP(16,6),5,PMYEXP(1,1),PMYEXP(16,6),5)
C
5520  CONTINUE
C
C
```

Figure B-2. (Continued)

```
            PEXPJ(J,IYRN)    = PEXPA                                    00059700
            PIMPJ(J,IYRN)    = PIMPA                                    00059800
            ALWPJ(J,IYRN)    = ENIA                                     00059900
            PEXP             = PEXP  + PEXPA                            00060000
            PIMP             = PIMP  + PIMPA                            00060100
            ENI              = ENI   + ENIA                             00060200
            POPOP            = POPOP + PGF(JPGF(J)) * PCP(J)            00060300
C                                                                       00060400
5510   CONTINUE                                                         00060500
C                                                                       00060600
C                                                                       00060700
C                                                                       00060800
C SECTION 5.8.1   STORE OVERALL IMPACT DATA TO BE PRINTED AT THE END    00060900
C               OF THE TIMESTREAM.                                      00061000
C                                                                       00061100
      TOPCP(IYRN)  = POPOP                                              00061200
      POPEXP(IYRN) = PEXP                                               00061300
      POPIMP(IYRN) = PIMP                                               00061400
      ALWPOP(IYRN) = ENI                                                00061500
C                                                                       00061600
5000  CONTINUE                                                          00061700
C                                                                       00061800
C SECTION 6.0   END OF TIMESTREAM. PRINT OUT STORED DATA                00061900
C                                                                       00062000
C                                                                       00062010
C DUMP ANNUAL METRICS                                                   00062020
C                                                                       00062030
      IF(IDUMP(12).EQ.1)   CALL PDUMP(POPEXP(1),STOPGF(9,9),5,          00062040
D12   2                                ENIDB(2,1),EXPDB(16,9),5)        00062050
C                                                                       00062060
      IF(IPRINT(5).EQ.1)  CALL  PRINT5                                  00062100
       IF(ICONT(1).EQ.1)        GO TO 6001                              00062110
      CALL PRINT6(IPLOT,IPRINT(6))                                      00062150
      IF(IPRINT(7).EQ.1)  CALL  PRINT7                                  00062200
      IF(IPRINT(8).EQ.1)  CALL  PRIN18                                  00062300
      IF(IPRINT(9).EQ.1)  CALL  PRINT9(1)                               00062400
      IF(IPRINT(9).EQ.1)  CALL  PRINT9(2)                               00062500
      IF(IPRINT(10).EQ.1) CALL  PRNT10                                  00062510
6001  IF(IPRINT(11).EQ.1) CALL  PRNT11                                  00062520
C                                                                       00062600
C SECTION 7.0   READ IN ANOTHER REGULATION SCENARIO                     00062700
C                                                                       00062800
C                                                                       00063000
7000   STOP                                                             00063100
C                                                                       00063200
C SECTION 8.0  DEBUG PACKETS                                            00063300
C                                                                       00063400
C       DEBUG SUBCHK                                                    00063500
C      AT 13                                                            00063600
C      DISPLAY N16DB                                                    00063700
C      TRACE ON                                                         00063800
      END                                                               00064000
```

Figure B-2. (Continued)

	TOTAL US POPULATION	POPULATION EXPOSED >55DB, PEXP	RELATIVE EXPOSURE PEXP/TOPOP	POPULATION IMPACTED POPIMP	LEVEL-WEIGHTED POPULATION LWP	NOISE IMPACT INDEX, NII= LWP/TOPOP	CHANGE IN LWP DLWP= LWPO-LWP	RELATIVE CHANGE IN LWP RCI= DLWP/LWPO
UNIT>	MILLIONS	MILLIONS	PERCENT	MILLIONS	MILLIONS	PERCENT	MILLIONS	PERCENT
YEAR								
1974	216.70	82.11	37.89	82.11	25.67	11.85	0.0	0.0
1980	232.80	87.78	37.71	87.78	27.70	11.90	-2.04	-7.93
1985	246.08	90.81	36.90	90.81	27.78	11.29	-2.12	-8.24
1990	259.37	93.19	35.93	93.19	27.46	10.59	-1.79	-6.98
1995	272.24	99.90	36.69	99.90	29.16	10.71	-3.49	-13.61
2000	285.11	110.31	38.69	110.31	32.56	11.42	-6.89	-26.84
2005	297.99	121.49	40.77	121.49	36.35	12.20	-10.68	-41.62
2010	310.86	132.88	42.74	132.88	40.34	12.98	-14.67	-57.16
2013	318.59	140.03	43.95	140.03	42.91	13.47	-17.24	-67.15

Figure B-3. Noise Impact Printout Using DEGFAC1 as the Main Program

YEAR	TOTAL US POPULATION	POPULATION EXPOSED >55DD, PEXP	RELATIVE EXPOSURE PEXP/TOPOP	POPULATION IMPACTED POPIHP	LEVEL-WEIGHTED POPULATION LWP	NOISE IMPACT INDEX, NII= LWP/TOPOP	CHANGE IN LWP DLWP= LWPO-LWP	RELATIVE CHANGE IN LWP IN LWP RCI= DLWP/LWPO
UNIT>	MILLIONS	MILLIONS	PERCENT	MILLIONS	MILLIONS	PERCENT	MILLIONS	PERCENT
1974	216.70	82.11	37.89	82.11	25.67	11.85	0.0	0.0
1980	232.80	87.58	37.62	87.58	27.61	11.86	-1.94	-7.56
1985	246.08	90.34	36.71	90.34	27.56	11.20	-1.89	-7.37
1990	259.37	92.54	35.68	92.54	27.15	10.47	-1.48	-5.78
1995	272.24	99.19	36.44	99.19	28.82	10.59	-3.15	-12.28
2000	285.11	109.57	38.43	109.57	32.19	11.29	-6.52	-25.41
2005	297.99	120.70	40.51	120.70	35.95	12.07	-10.28	-40.07
2010	310.86	132.05	42.48	132.05	39.90	12.84	-14.24	-55.46
2013	318.59	139.19	43.69	139.19	42.45	13.32	-16.78	-65.36

Figure B-4. Noise Impact Printout Using VARNET9R as the Main Program

Table 1

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 1

LEVEL: 1978

VEHICLE TYPE: 8

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M) ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 2

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 2

LEVEL: 1978

VEHICLE TYPE: 8

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M) ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 3
DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 3
LEVEL : 1978
VEHICLE TYPE : 8
PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M) ACCEL	DECEL	CRUISE	IDLE
1	3	0	2	0
2	3	0	2	0
3	3	3	0	0
4	1.5	3	0	0
5	0	3	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 4

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 4

LEVEL : 1978

VEHICLE TYPE : 8

PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M) ACCEL	DECEL	CRUISE	IDLE
1	3.	0	2	
2	3	0	2	
3	3	3	0	
4	1.5	3	0	
5	0	3	0	

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 5

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 5

LEVEL : 1972

VEHICLE TYPE: 8

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L) \ OPERATION MODE (M)	ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 6

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 1

LEVEL: 1982

VEHICLE TYPE: 8

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M) ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 7

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 2

LEVEL : 1972

VEHICLE TYPE : 8

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 8

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 3

LEVEL : 1972

VEHICLE TYPE : 8

PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	3	0	2	0
2	3	0	2	0
3	3	3	0	0
4	1.5	3	0	0
5	0	3	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 9

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 4

LEVEL : 1975

VEHICLE TYPE : 8

PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	3	0	2	0
2	3	0	2	0
3	3	3	0	0
4	1.5	3	0	0
5	0	3	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 10

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 5

LEVEL : 1982

VEHICLE TYPE : 8

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 11

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 1

LEVEL : 1978

VEHICLE TYPE: 9

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M) ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 12

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 2

LEVEL : 1977

VEHICLE TYPE : 9

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M) ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 13

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 3

LEVEL : 1978

VEHICLE TYPE : 9

PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	3	0	2	0
2	3	0	2	0
3	3	3	0	0
4	1.5	3	0	0
5	0	3	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 14

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 4

LEVEL : 1977

VEHICLE TYPE : 9

PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	3	0	2	0
2	3	0	2	0
3	3	3	0	0
4	1.5	3	0	0
5	0	3	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 15

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 5

LEVEL: 1978

VEHICLE TYPE: 9

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 16

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 1

LEVEL: 1982

VEHICLE TYPE: 9

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	2	2	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 17

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 2

LEVEL: 1982

VEHICLE TYPE: 9

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 18

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 3

LEVEL : 1972

VEHICLE TYPE : 9

PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	3	0	2	0
2	3	0	2	0
3	3	3	0	0
4	1.5	3	0	0
5	0	3	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 19

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 4

LEVEL : 1982

VEHICLE TYPE : 9

PERDEG: .08

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	3	0	2	0
2	3	0	2	0
3	3	3	0	0
4	1.5	3	0	0
5	0	3	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 20

DEGFAC and PERDEG Values

NOISE DEGRADATION MATRIX

IAGE : 5

LEVEL : 1982

VEHICLE TYPE : 9

PERDEG: .19

AVERAGE NOISE DEGRADATION (dB)

SPEED RANGE (L)	OPERATION MODE (M)			
	ACCEL	DECEL	CRUISE	IDLE
1	2	0	1	0
2	2	0	1	0
3	2	2	0	0
4	1	2	0	0
5	0	2	0	0

SPEED RANGE DEFINITIONS (MPH)

MODE \ SPEED RANGE	1	2	3	4	5
ACCEL	0-20	0-30	0-40	0-50	0-60
DECEL	20-0	30-0	40-0	50-0	60-0
CRUISE	<25	25-34	35-44	45-54	>55
IDLE	0	0	0	0	0

Table 24

ALREG Values (Noise Emission Levels, in dBA)

TYPE 1

ACCELERATION MODE

YEARS>	1974
0-20 MPH	59.30
0-30	61.30
0-40	63.00
0-50	64.60
0-60	66.70

DECELERATION MODE

YEARS>	1974
20-0 MPH	58.50
30-0	58.10
40-0	60.10
50-0	63.20
60-0	65.80

CRUISE MODE

YEARS>	1974
<25 MPH	59.00
25-34	62.00
35-40	66.00
45-54	69.50
>55	72.00

IDLE MODE

YEARS>	1974
	60.00

TYPE 2

ACCELERATION MODE

YEARS>	1974
0-20 MPH	60.50
0-30	62.20
0-40	63.70
0-50	65.30
0-60	67.00

DECELERATION MODE

YEARS>	1974
20-0 MPH	58.50
30-0	58.10
40-0	60.10
50-0	63.20
60-0	65.80

CRUISE MODE

YEARS>	1974
<25 MPH	59.00
25-34	62.00
35-40	66.00
45-54	69.50
>55	72.00

IDLE MODE

YEARS>	1974
	60.00

Page B-42, B-43 and B-44 blank.

Table 25

ALREG Values (Noise Emission Levels, in dBA)

TYPE 3

ACCELERATION MODE

YEARS>	1974
0-20 MPH	60.20
0-30	62.40
0-40	63.90
0-50	65.50
0-60	67.20

DECELERATION MODE

YEARS>	1974
20-0 MPH	50.50
30-0	56.10
40-0	60.10
50-0	63.20
60-0	65.60

CRUISE MODE

YEARS>	1974
<25 MPH	59.00
25-34	62.00
35-44	66.00
45-54	69.50
>55	72.00

IDLE MODE

YEARS>	1974
	46.00

TYPE 4

ACCELERATION MODE

YEARS>	1974
0-20 MPH	62.50
0-30	64.80
0-40	65.10
0-50	66.40
0-60	67.80

DECELERATION MODE

YEARS>	1974
20-0 MPH	50.50
30-0	56.10
40-0	60.10
50-0	63.20
60-0	65.60

CRUISE MODE

YEARS>	1974
<25 MPH	59.00
25-34	62.00
35-44	66.00
45-54	69.50
>55	72.00

IDLE MODE

YEARS>	1974
	46.00

Table 26

ALREG Values (Noise Emission Levels, in dBA)

TYPE 5

ACCELERATION MODE

YEARS>	1974
0-20 MPH	82.20
0-30	84.30
0-40	85.60
0-50	87.00
0-60	88.00

DECELERATION MODE

YEARS>	1974
20-0 MPH	51.70
30-0	57.30
40-0	61.30
50-0	64.50
60-0	67.00

CRUISE MODE

YEARS>	1974
<25 MPH	61.00
25-34	63.50
35-44	67.60
45-54	70.70
>55	73.20

IDLE MODE

YEARS>	1974
	60.00

TYPE 6

ACCELERATION MODE

YEARS>	1974
0-20 MPH	82.50
0-30	84.60
0-40	86.00
0-50	87.00
0-60	89.70

DECELERATION MODE

YEARS>	1974
20-0 MPH	53.00
30-0	59.00
40-0	63.00
50-0	66.10
60-0	68.70

CRUISE MODE

YEARS>	1974
<25 MPH	62.70
25-34	65.30
35-44	69.30
45-54	72.40
>55	76.90

IDLE MODE

YEARS>	1974
	60.00

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Table 27

ALREG Values (Noise Emission Levels, in dBA)

TYPE 7

ACCELERATION MODE

YEARS>	1974
0-20 MPH	65.20
0-30	66.60
0-40	67.50
0-50	68.30
0-60	69.30

DECELERATION MODE

YEARS>	1974
20-0 MPH	56.30
30-0	57.90
40-0	61.90
50-0	65.00
60-0	67.60

CRUISE MODE

YEARS>	1974
<25 MPH	61.60
25-34	64.20
35-44	68.20
45-54	71.30
>55	73.80

IDLE MODE

YEARS>	1974
	46.00

TYPE 8

ACCELERATION MODE

YEARS>	1974	1978	1982
0-20 MPH	75.10	75.10	74.80
0-30	75.70	75.70	75.40
0-40	76.50	76.50	76.20
0-50	77.50	77.50	77.30
0-60	78.70	78.70	78.60

DECELERATION MODE

YEARS>	1974	1978	1982
20-0 MPH	65.70	65.70	65.60
30-0	65.70	65.70	65.60
40-0	69.90	69.90	69.80
50-0	73.20	73.20	73.10
60-0	75.90	75.90	75.80

CRUISE MODE

YEARS>	1974	1978	1982
<25 MPH	74.40	74.40	74.20
25-34	74.40	74.40	74.20
35-44	76.40	76.40	76.30
45-54	79.70	79.70	79.60
>55	82.30	82.30	82.30

IDLE MODE

YEARS>	1974	1978	1982
	54.00	54.00	54.00

Table 28

ALREG Values (Noise Emission Levels, in dBA)

TYPE 9

ACCELERATION MODE

YEARS>	1974	1978	1982
0-20 MPH	82.70	79.90	75.90
0-30	82.60	79.80	76.80
0-40	82.80	79.10	76.40
0-50	83.80	79.40	76.90
0-60	83.20	79.90	77.70

DECELERATION MODE

YEARS>	1974	1978	1982
20-0 MPH	73.70	70.10	67.00
30-0	73.70	70.10	67.00
40-0	76.70	73.60	71.00
50-0	79.10	75.90	73.70
60-0	81.10	78.40	76.10

CRUISE MODE

YEARS>	1974	1978	1982
<25 MPH	80.70	77.20	74.60
25-34	80.70	77.20	74.60
35-44	82.10	78.90	76.80
45-54	84.50	81.50	79.60
>55	86.50	83.70	82.10

IDLE MODE

YEARS>	1974	1978	1982
	63.80	60.80	57.80

TYPE 10

ACCELERATION MODE

YEARS>	1974
0-20 MPH	81.60
0-30	84.80
0-40	82.30
0-50	82.60
0-60	82.80

DECELERATION MODE

YEARS>	1974
20-0 MPH	71.60
30-0	71.60
40-0	73.80
50-0	75.60
60-0	77.10

CRUISE MODE

YEARS>	1974
<25 MPH	76.80
25-34	76.80
35-44	78.60
45-54	80.20
>55	81.70

IDLE MODE

YEARS>	1974
	62.80

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Table 29

ALREG Values (Noise Emission Levels, in dBA)

TYPE 11

ACCELERATION MODE

YEARS>	1974
0-20 MPH	81.00
0-30	81.00
0-40	81.10
0-50	81.20
0-60	81.50

DECELERATION MODE

YEARS>	1974
20-0 MPH	63.70
30-0	67.80
40-0	70.60
50-0	72.90
60-0	74.70

CRUISE MODE

YEARS>	1974
<25 MPH	73.00
25-34	73.00
35-44	75.80
45-54	78.10
>55	79.90

IDLE MODE

YEARS>	1974
	58.00

TYPE 12

ACCELERATION MODE

YEARS>	1974
0-20 MPH	77.60
0-30	78.10
0-40	78.60
0-50	78.90
0-60	79.40

DECELERATION MODE

YEARS>	1974
20-0 MPH	63.70
30-0	67.80
40-0	70.60
50-0	72.90
60-0	74.70

CRUISE MODE

YEARS>	1974
<25 MPH	73.00
25-34	73.00
35-44	75.80
45-54	78.10
>55	79.90

IDLE MODE

YEARS>	1974
	58.00

Table 30

ALREG Values (Noise Emission Levels, in dBA)

TYPE 1A

ACCELERATION MODE

YEARS>	1974	1980	1982	1985
0-20 MPH	73.30	73.30	71.50	69.50
0-30	74.90	74.90	73.10	71.10
0-40	75.40	75.40	73.60	71.60
0-50	75.70	75.70	73.90	71.90
0-60	75.90	75.90	74.10	72.10

DECELERATION MODE

YEARS>	1974	1980	1982	1985
20-0 MPH	61.50	61.50	59.70	57.70
30-0	65.90	65.90	64.10	62.10
40-0	69.80	69.80	67.20	65.20
50-0	71.60	71.60	69.60	67.60
60-0	73.40	73.40	71.60	69.60

CRUISE MODE

YEARS>	1974	1980	1982	1985
<25 MPH	71.30	71.30	69.50	67.50
25-35	71.30	71.30	69.50	67.50
35-45	74.60	74.60	72.80	70.80
45-55	75.90	75.90	75.10	73.10
>55	78.90	78.90	77.10	75.10

IDLE MODE

YEARS>	1974	1980	1982	1985
	60.00	60.00	58.00	57.00

TYPE 1A

ACCELERATION MODE

YEARS>	1974
0-20 MPH	87.50
0-30	89.10
0-40	89.60
0-50	89.90
0-60	90.10

DECELERATION MODE

YEARS>	1974
20-0 MPH	75.70
30-0	80.10
40-0	83.20
50-0	85.60
60-0	87.60

CRUISE MODE

YEARS>	1974
<25 MPH	85.50
25-35	85.50
35-45	88.60
45-55	91.10
>55	93.10

IDLE MODE

YEARS>	1974
	72.00

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APPENDIX C

Source Code Listings of NRTNEM Version 9R

This appendix contains the listings of the FORTRAN source code. For each module, the cross-reference listing is given first, followed by the edited source listing as produced by the IBM FORTRAN H Extended Compiler, except for BLOCK DATA modules where the standard source listing precedes the cross-reference. The listings are not identified by section, figure, or table numbers, but the modules appear in the manual's table of contents with the appropriate page numbers. The modules are named by their member name in TRAWO which is unique. The FORTRAN global symbol names are not always unique since GAR and SEM modules often use the same globals, but are derived from different source modules. The sequence of modules is the same as shown in Figure 3-1.

C.1 GAR Modules

```
 LEVEL 2.2  (SEPT 76)          ADD          09/360  FORTRAN 4 EXTENDED          DATE 80.273/19.02.45       PAGE   1

 REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

 OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                    NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                          *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 SYMBOL  INTERNAL STATEMENT NUMBERS
 ADD     0002  0003
 AL1     0002  0003
 AL2     0002  0003
 ALOG10  0003


                                                / STRUCTURED SOURCE LISTING /
 (001  ISN 0002          FUNCTION ADD(AL1,AL2)                                          00089700
                         C ADDS TWO NOISE LEVELS                                        00089800
       ISN 0003          ADD=10.*ALOG10(10.**(AL1/10.)+10**(AL2/10.))                   00089900
       ISN 0004          RETURN                                                         00090000
  001)                   C
       ISN 0005          END                                                            00090100


 *OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

 *OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

 *STATISTICS*      SOURCE STATEMENTS =       4, PROGRAM SIZE =      354, SUBPROGRAM NAME(S)=   ADD

 *STATISTICS*  NO  DIAGNOSTICS GENERATED

 ****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

C-2

```
REQUESTED OPTIONS: XREF,OPT(2),GOSTMT,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   SOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP NOFORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

ISN 0002          BLOCK DATA
                C
                CF FILE VARNET4D IS THE FIRST SUBFILE TO VARNET4
                CF FILE LAST UPDATED:        12/29/78 17:07:34
                C
                C
ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                B1   2                VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                B1   3                A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),
                B1   4                PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                B1   5                AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                B1   6                XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),
                B1   7                MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),
                B1   8                JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I
                C
                C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                C
ISN 0004          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),
                B2   2                POPEXP(9),POPIMP(9),ALWPJP(9),TOPOP(9),
                B2   3                PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),
                B2   4                PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STOPGF(9,9),
                B2   5                POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),
                B2   6                MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),
                B2   7                MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N16DB,
                B2   8                ITABLE
                C
                C END PRINT  COMMON BLOCK
                C
ISN 0005          COMMON /BIG003/ GAMM(6,9),ALEVEL(6,5),BONE(4,9,6),BTWO(4,9,6),
                B3   2                XK(4,9,6),FACT2(4,9,6),AML(9,6,5),VML(14,4,5),
                B3   3                EDGE(4,9),EDGEPZ(4,9,6),WDTHPZ(4,9),POP(9),V(5),
                B3   4                SIG(5,4,5,14),FLOMIX(14,4,5),PERCNT(4,2,4),
                B3   5                PMYEXP(16,6),PMYLWP(16,6),EXPINC(16,6),
                B3   6                EXPDEC(16,6),PXPDBK(16),CDBA(9,16),ADBA(16),
                B3   7                DBSUM(16,16),MIXDB(16,16),FACT3(4,9),FACT4(4,9),
                B3   8                JFLO(9),KFLO(6),KPER(6),IPER(14)
                C
                C
                C DATA STATEMENTS FOLLOW
                C
                C
                C AREA AND POPULATION DATA.
                C
                C NIDD(J) IS THE NUMBER OF VARIABLE DENSITY REGIONS IN AREA TYPE J
                C
ISN 0006          DATA NIDD/3,4,4,3,3,3,4,4,1/
                C
                C POPULATION DENSITIES, NUMBER OF PEOPLE PER SQ. MILE.
                C
ISN 0007          DATA  POPDEN /
                C       ID=      1         2         3         4
                C    J=
                     1          41826.,  6236.8,  2583.6,      0.,
```

```
                2          7720.6,  5264.5,  2190.4,  1307.9,
                3          5666.7,  4174.2,  1897.4,   1156.,
                4          7469.8,  2287.4,  1165.5,      0.,
                5          4164.9,  2247.5,  1298.5,      0.,
                6          3243.2,  1903.1,  1078.7,      0.,
                7          8051.7,  3327.0,  1574.4,   693.8,
                8          8406.8,  3944.5,  1868.3,   464.1,
                9           18.46,      0.,      0.,      0.      /
          C
          C
          C       PGF0=INITIAL POPULATION GROWTH FACTOR=1
          C       JPGF=SELECTOR ARRAY FOR PGF
          C
ISN 0008          DATA PGF0/5*1.E0/,JPGF/1,2,2,3,3,4,4,4,5/
          C
          C AREA DATA, SQUARE MILES
          C
ISN 0009          DATA AREA     /
          C          ID=.        1           2           3           4
          C    J=
                1          134.2E0,  3572.0E0,  8358.0E0,     0.0E0,
                2          272.0E0,   775.0E0,  5080.0E0,  4089.0E0,
                3           63.0E0,   488.0E0,  4426.0E0,  4584.0E0,
                4          215.0E0,  4558.0E0,  5790.0E0,     0.0E0,
                5          279.0E0,  1305.0E0,  5266.0E0,     0.0E0,
                6          329.0E0,  1115.0E0,  4195.0E0,     0.0E0,
                7           58.0E0,   896.0E0,  2230.0E0,  2769.0E0,
                8          220.0E0,  1261.0E0,  4527.0E0,  5820.0E0,
                9      3476938.0E0,     0.0E0,     0.0E0,     0.0E0/
          C
          C THE AREA AND ROADWAY ADJUSTMENT FACTORS FOR UNPOPULATED LAND
          C    POPULATED AREA=TOTAL AREA   *   ADJUSTMENT FACTOR
          C
ISN 0010          DATA FPAREA/
          C        J=  1     2     3     4     5     6     7     8     9
          C  ID=
                1    .646, .574, .610, .777, .713, .777, .619, .495, 1.00,
                2    .493, .579, .600, .619, .578, .664, .391, .369,  .0,
                3    .423, .437, .494, .529, .646, .670, .335, .298,  .0,
                4    .00 , .466, .495, .0  , .0  , .0  , .323, .285,  .0/
ISN 0011                  DATA  FPROAD /
          C        J=          1-6                7-8          9
          C    K=
                1        6*     .764,      2*      .656,      1.00,
                2        6*     .738,      2*      .679,      1.00,
                3        6*     .866,      2*      .843,      1.00,
                4        6*     .845,      2*      .849,      1.00,
                5        6*     .852,      2*      .867,      1.00,
                6        6*     .852,      2*      .867,      1.00      /
          C
          C OTHER DATA
          C
          C
          C NOISE AND CRITERION LEVEL DATA. A(1 OR 2, ITYPE)=WYLE CURVE COEFFI-
          C       CIENTS. THREE WYLES CURVES, EACH DEFINED BY TWO A, DEPENDING
          C       ON THE DBA LEVEL. HIGHER THAN KINK, DBK, USE A1; IF DB LOWER
          C       THAN KINK, USE A2 AND B2(DERIVED IN PROGRAM).
          C           ALC(J) IS THE LOCAL CRITERION LEVEL
```

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```
                C
                C
                C WYLE CURVE CHOOSER
                C
ISN 0012              DATA JWYLE    /
                C        J=   1    2    3    4    5    6    7    8    9
                C  ID=
                     1       1,   1,   2,   2,   2,   2,   1,   2,   3,
                     2       2,   2,   2,   3,   3,   3,   2,   2,   0,
                     3       2,   3,   3,   3,   3,   3,   3,   3,   0,
                     4       0,   3,   3,   0,   0,   0,   3,   3,   0          /
ISN 0013              DATA A/3.03675E1,1.09749E1,2.52193E1,1.21755E1,2*1.55082E1/
ISN 0014              DATA DBK/19.,14.,4.5/
ISN 0015              DATA FI/9*1.E0/
ISN 0016              DATA ALC/9*5.5E1/
                C
                C MEANING OF VARIABLES: MYRB = BASELINE YEAR
                C                       NVT  = NUMBER OF VEHICLE TYPES
                C                       NAT  = NUMBER OF AREA TYPES
                C                       NHT  = NUMBER OF HIGHWAY TYPES
                C                       NSR  = NUMBER OF SPEED RANGES
                C
ISN 0017              DATA MYRB,NVT,NAT,NHT,NSR/
                     C     1974,14 , 9 , 6 , 5        /
                C
                C  DBA=NOISE LEVEL RANGES, 5DBS FROM 55, 80 AND UP
                C   N16DB=NUMBER OF DB RANGES=DIM OF DBA -1 (DBA CONTAINS AN UPPER BOUND
                C
ISN 0018              DATA DDBA/ 91.01,88.0,85.0,82.0,79.0,76.0,73.0,70.0,67.0,
                     1           64.0,61.0,58.0,55.0,52.0,49.0,0.0/
ISN 0019              DATA ADBA/ 100.0,89.5,86.5,83.5,80.5,77.5,74.5,71.5,68.5,65.5,
                     1           62.5,59.5,56.5,53.5,50.5,24.5/
ISN 0020              DATA N16DB /16/
                C
                C    VEHICLE DATA
                C
                C
                C  MYREF = REFERENCE YEAR FOR EACH IVBD GROUP
                C  IEQAGE  = EQUIVALENT AGE OF CARS LUMPED INTO REMO(1,IVBD) IN THE
                C          BASELINE YEAR.
                C  LIFE  = LIFE OF CARS OF GROUP IVAF, AS GIVEN BY THE NUMBER OF
                C          NO-ZERO ENTRIES IN THE RELEVANT VAF TABLE.
                C
ISN 0021              DATA MYREF/1958,1958,1970,1970,1970,1958/
ISN 0022              DATA LIFE/18,21,21,12/
ISN 0023              DATA IEQAGE/6,7,7,7,7,6/
                C
                C REMO(IVBD,IYR)=TOTAL NUMBER OF VEHICLES OF GROUP IVBD AND MODEL
                C IYR WRT REFERENCE YEAR OF GROUP IVBD WHICH SURVIVES IN THE BASE-
                C  LINE YEAR.
                C IVBD(I)=VEHICLE BREAKDOWN GROUP TO WHICH TYPE I BELONGS. THERE ARE
                C  A TOTAL OF SIX VEHICLE BREAKDOWN GROUPS. GROUP 1(I=1 TO 7)ARE
                C  AUTOMOBILES;GROUP 2(I=8-9) ARE TRUCKS;GROUP 3-5 ARE BUSES, AND
                C  GROUP 6 CONSISTS OF MOTORCYCLES.(I=13-14)
                C   DATA SOURCES FOR REMO: MVMA, BUS DOCUMENT.
                C
ISN 0024              DATA REMO /
                C     IVBD=1         2         3         4         5         6
```

```
C IYREF=
     1>  2100062.,   370391.,   13905.,   42057.,   184460.,    83436.,00079100
     2>   506559.,    59871.,    1084.,    3319.,    28263.,    20129.,00079200
     3>   883563.,    70227.,    1886.,    4819.,    38378.,    35063.,00079300
     4>  1167288.,    69094.,    2246.,    6706.,    47511.,    46317.,00079400
     5>  2348827.,    97573.,    1479.,   12571.,    58226.,    93308.,00079500
     6>  3658626.,   121684.,       0.,       0.,        0.,   145340.,00079600
     7>  5151096.,   152266.,       0.,       0.,        0.,   204629.,00079700
     8>  7397576.,   185276.,       0.,       0.,        0.,   293871.,00079800
     9>  8461220.,   211814.,       0.,       0.,        0.,   336125.,00079900
    10>  8581706.,   211166.,       0.,       0.,        0.,   340911.,00080000
    11> 10274987.,   229451.,       0.,       0.,        0.,   408177.,00080100
    12> 11161141.,   291911.,       0.,       0.,        0.,   443380.,00080200
    13> 11003084.,   274759.,       0.,       0.,        0.,   437103.,00080300
    14> 11170210.,   281879.,       0.,       0.,        0.,   443740.,00080400
    15> 13145920.,   387705.,       0.,       0.,        0.,   522226.,00080500
    16> 14599324.,   457770.,       0.,       0.,        0.,   579971.,00080600
    17> 13959524.,   447576.,       0.,       0.,        0.,   518315./00080700
C                                                                       00080800
C VBD74(I) = VEHICLE BREAKDOWN RATIO IN ITS IVBD GROUP.                 00080900
C IVBD(I)=THE VBD GROUP TO WHICH TYPE I BELONGS.                        00081000
C XINC(I=1-7) ARE INTERPOLATORY INCREMENTS WHICH ARE USED TO CALCULATE  00081100
C    THE CURRENT VBD FROM VBD74.                                        00081200
C                                                                       00081300
ISN 0025        DATA IVBD/1,1,1,1,1,1,1,2,2,3,4,5,6,6/                  00081600
C                                                                       00081900
C VAF(IVAF,IAGE)=FOUR ATTRITION FACTOR TABLES FOR VEHICLES              00082000
C      IAGE=AGE OF VEHICLES IN THE CURRENT YEAR.                        00082100
C      IVAF(I)=1,2,3 OR 4, POINTS TO WHICH COLUMN TO USE FOR TYPE I     00082200
C                                                                       00082300
ISN 0026          DATA VAF  /                                           00082400
C                                                                       00082500
C IVAF=    1       2       3       4          1       2       3       4 00082600
C                                                                       00082700
C IAGE=          ODD IAGE                              EVEN IAGE        00082800
 1- 2>   1.000, 1.000, 1.000,0.98  ,     0.9998,1.0000,1.0000,0.96  ,  00082900
 3- 4>  0.9990,0.9998,0.9998,0.90  ,     0.9960,0.9927,0.9927,0.75  ,  00083000
 5- 6>  0.9877,0.9711,0.9711,0.55  ,     0.9683,0.9329,0.9329,0.37  ,  00083100
 7- 8>  0.9307,0.8783,0.8783,0.26  ,     0.8677,0.8089,0.8089,0.17  ,  00083200
 9-10>  0.7756,0.7272,0.7272,0.10  ,     0.6570,0.6364,0.6364,0.05  ,  00083300
11-12>  0.5214,0.5402,0.5402,0.02  ,     0.3834,0.4424,0.4424,0.01  ,  00083400
13-14>  0.2583,0.3469,0.3469,0.00  ,     0.1575,0.2576,0.2576,0.00  ,  00083500
15-16>  0.0857,0.1780,0.1780,0.00  ,     0.0410,0.1113,0.1113,0.00  ,  00083600
17-18>  0.0168,0.0598,0.0598,0.00  ,     0.0057,0.0248,0.0248,0.00  ,  00083700
19-20>   0.0  ,0.0062,0.0062, 0.0  ,      0.0  ,0.0013,0.0013, 0.0  ,  00083800
21-22>   0.0  ,0.0013,0.0013, 0.0  ,      0.0  ,0.0000, 0.0  , 0.0  ,  00083900
23-24>   0.0  ,0.0000, 0.0  , 0.0  ,      0.0  ,0.0000, 0.0  , 0.0  ,  00084000
25-26>   0.0  ,0.0000, 0.0  , 0.0  ,      0.0  ,0.0000, 0.0  , 0.0  /  00084100
ISN 0027        DATA IVAF/1,1,1,1,1,1,1,2,2,3,3,3,4,4/                  00084200
C                                                                       00084300
C VGF(IYR,IVGF(I)) IS A SET OF FOUR TABLES. EACH TABLE HAS FORTY REAL*4 00084400
C   CONSTANTS, ONE FOR EACH YEAR IN THE TIMESTREAM. IT IS THE VEHICLE   00084500
C   GROWTH FACTOR FOR VEHICLES IN THAT IVGF GROUP.                      00084600
C IVGF(I) IS THE POINTER WHICH POINTS TO THE APPROPIATE VGF TABLE FOR   00084700
C   TYPE I VEHICLES.                                                    00084800
C                                                                       00084900
ISN 0028        DATA VGF /                                              00085000
C                TABLE 1.   FOR TYPES 1-9,13-14                         00085100
```

*****FORTRAN CROSS REFERENCE LISTING*****

SYMBOL	INTERNAL STATEMENT NUMBERS	
BTWO	0005	0041
COBA	0005	0038
CON0	0003	
CON2	0003	
DOBA	0004	0018
EDGE	0005	
GAMM	0005	0036
IPER	0005	0033
IVAF	0003	0027
IVBD	0003	0025
IVGF	0003	0029
JFLO	0005	0031
JPGF	0003	0008
KFLO	0005	0031
KPER	0005	0033
LANE	0003	0035
LIFE	0003	0022
MILE	0004	
MYRB	0004	0017
MYRE	0003	
NIDD	0004	0006
NLEV	0004	
NYRN	0004	
PGFO	0003	0008
REMO	0003	0024
VINC	0003	
VPOP	0003	
VTOT	0004	
XINC	0003	
YINC	0003	
ALREG	0004	
ALWPJ	0004	
ALWPK	0004	
BVPOP	0003	
DBSUM	0005	0038
ENIDB	0004	
EXPDB	0004	
FACT2	0005	
FACT3	0005	0039
FACT4	0005	0039
GVTOT	0004	
JWYLE	0003	0012
MIXDB	0005	0038
MODYR	0003	
MYREF	0003	0021
MYREG	0004	
N16DB	0004	0020
PEXPJ	0004	
PEXPK	0004	
PIMPJ	0004	
PIMPK	0004	
TOPOP	0004	
VBD74	0003	
VBD77	0003	
VBD85	0003	

```
                     * 10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,    40.,  40.,  40.,  40.,  00088590
                     * 10.,  15.,  20.,  30.,    10.,  15.,  20.,  30.,    10.,  15.,  20.,  30.,  00088600
                     * 10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,  00088610
                     * 10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,    40.,  40.,  40.,  40.,  00088620
                     *  5.,  10.,  15.,  20.,     5.,  10.,  15.,  20.,     5.,  10.,  15.,  20.,  00088630
                     * 10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,  00088640
                     * 10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,    40.,  40.,  40.,  40.,  00088650
                     *  5.,  10.,  15.,  20.,     5.,  10.,  15.,  20.,     5.,  10.,  15.,  20.,  00088660
                     * 10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,  00088670
                     * 10.,  20.,  30.,  40.,    10.,  20.,  30.,  40.,    40.,  40.,  40.,  40./  00088680
ISN 0035                DATA WIDTH/9*1.5E1,45*1.2E1/,LANE/45*4,9*2/                                00088700
                     C                                                                             00088800
                     C NOW SET UP VARIOUS CONSTANTS                                                00088900
                     C                                                                             00089000
                     C                                                                             00089150
                     C       GAMM, SITE HARDNESS FACTOR                                            00089160
                     C                                                                             00089170
ISN 0036                DATA GAMM /12*0.,2*.5,4*0.,2*.5,4*0.,2*.5,4*0.,2*.5,4*.0,18*.5/.           00089200
ISN 0037                DATA ITABLE /0/                                                            00089220
ISN 0038                DATA CDBA / 144 * 0.0E0 /, DBSUM / 256 * 0.0E0 /,MIXDB / 256 * 1 /         00089240
ISN 0039                DATA FACT3 / 36 * 0.0 /, FACT4 / 36 * 0.0 /                                00089260
ISN 0040                DATA WDTHPZ / 36 * 0.0 /, EDGEPZ / 216 * 0.0 /,XK / 216 * 0.0 /.           00089300
ISN 0041                DATA BONE / 216 * 0.0E0 /,BTHO  / 216 * 0.0E0 /                            00089510
ISN 0042                DATA POPLTN /  36 * 0.0 /,POP  / 9 * 0.0 /                                 00089530
ISN 0043                END                                                                        00089600
```

C-8

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS
A	0003	0013
I	0003	
V	0005	0030
A1	0003	
A2	0003	
B1	0003	
B2	0003	
FI	0003	0015
IT	0003	
XK	0005	0040
ADT	0003	0032
ALC	0003	0016
ALO	0003	
AML	0005	
CZD	0003	0034
DBK	0003	0014
NAT	0004	0017
NHT	0004	0017
NSR	0004	0017
NVT	0004	0017
PGF	0003	
POP	0005	0042
SIG	0005	
VAF	0003	0026
VGF	0003	0028
VML	0005	
ADBA	0005	0019
AREA	0003	0009
BONE	0005	0041

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS	
BTWO	0005	0041
COBA	0005	0038
CON0	0003	
CON2	0003	
DDBA	0004	0018
EDGE	0005	
GAMM	0005	0036
IPER	0005	0033
IVAF	0003	0027
IVBD	0003	0025
IVGF	0003	0029
JFLO	0005	0031
JPGF	0003	0008
KFLO	0005	0031
KPER	0005	0033
LANE	0003	0035
LIFE	0003	0022
MILE	0004	
MYRB	0004	0017
MYRE	0003	
NIDD	0004	0006
NLEV	0004	
NYRN	0004	
PGFO	0003	0008
REMO	0003	0024
VINC	0003	
VPOP	0003	
VTOT	0004	
XINC	0003	
YINC	0003	
ALREG	0004	
ALWPJ	0004	
ALWPK	0004	
BVPOP	0003	
DBSUM	0005	0038
ENIDB	0004	
EXPDB	0004	
FACT2	0005	
FACT3	0005	0039
FACT4	0005	0039
GVTOT	0004	
JWYLE	0003	0012
MIXDB	0005	0038
MODYR	0003	
MYREF	0003	0021
MYREG	0004	
N16DB	0004	0020
PEXPJ	0004	
PEXPK	0004	
PIMPJ	0004	
PIMPK	0004	
TOPOP	0004	
VBD74	0003	
VBD77	0003	
VBD85	0003	

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS	
VBD90	0003	
WIDTH	0003	0035
XKINK	0003	
ALEVEL	0005	
ALWPOP	0004	
EDGEPZ	0005	0040
EXPDEC	0005	
EXPINC	0005	
FLOMIX	0005	
FPAREA	0003	0010
FPROAD	0003	0011
IEQAGE	0003	0023
ITABLE	0004	0037
MYANET	0004	
PERCNT	0005	
PMYEXP	0005	
PMYLWP	0005	
POPDEN	0004	0007
POPEXP	0004	
POPIMP	0004	
POPLTN	0004	0042
PXPDBK	0005	
STOPGF	0004	
WDTHPZ	0005	0040

C-10

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*SOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP NOFORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 42, PROGRAM SIZE = 0, SUBPROGRAM NAME =BIG001

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 98K BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS		
A	0003		
I	0003		
A1	0003		
A2	0003		
B1	0003		
B2	0003		
FI	0003		
IT	0003		
ADT	0003		
ALC	0003		
ALO	0003		
CZD	0003		
DBK	0003		
GAM	0002	0004	0006
PGF	0003		
VAF	0003		
VGF	0003		
AREA	0003		
CON0	0003	0004	
CON2	0003	0006	
IVAF	0003		
IVBD	0003		
IVGF	0003		
JPGF	0003		
LANE	0003		
LIFE	0003		
MYRE	0003		
PGF0	0003		
REMO	0003		
VINC	0003		
VPOP	0003		
XINC	0003		
YINC	0003		
BVPOP	0003		
CONST	0002	0004	0006
JWYLE	0003		
MODYR	0003		
MYREF	0003		
VBD74	0003		
VBD77	0003		
VBD85	0003		
VBD90	0003		
WIDTH	0003		
XKINK	0003		
FPAREA	0003		
FPROAD	0003		
IEQAGE	0003		

/ STRUCTURED SOURCE LISTING /

```
(001  ISN 0002            FUNCTION CONST(GAM)                                                    00010000
                          C THIS IS A MORE EFFICIENT SPECIAL CASE OF CON(GAM)                     00010100
                          CX CONST   LAST UPDATE:                                                00020000
                          C                                                                      00020100
                          C THE FOLLOWING IS A KEYED TABLE OF COMMON AREAS                       00020200
                          C                                                                      00020300
                          CC BIG001  LAST UPDATE:       10/31/78 22:31:44                        00020400
                          CC BIG002  LAST UPDATE:       10/18/78 17:36:26                        00020500
                          CC BIG003  LAST UPDATE:       10/18/78 17:36:26                        00020600
                          CC BIG004  LAST UPDATE:       11/01/78 16:12:41                        00020700
                          C                                                                      00020800
                          C THE FOLLOWING IS A HEADER FOR THE ENTIRE FILE                        00020900
                          C                                                                      00021000
                          CF VARNETD LAST UPDATE:       11/16/78 10:10:49                        00021100
                          C  CHANGES: CREATED PRNT11                                             00021110
                          C           FIXED VBD FOR YEARS BEFORE 1974                            00021120
                          C                                                                      00021200
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),        00056321
                    B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                         00056322
                    B1   3A(2,3),DBK(3),C2D(4,9,6),ALC(9),FI(9),PGF(5),                       00056323
                    B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                             00056324
                    B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                         00056325
                    B1   6XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),                            00056326
                    B1   7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JAYLE(9,4),                      00056327
                    B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I                       00056328
      ISN 0004            IF(GAM.EQ. 0.0E0)CONST=CON0                                          00056350
      ISN 0006            IF(GAM.EQ. 0.5E0)CONST=CON2                                          00056360
      ISN 0008            RETURN                                                               00056370
001)                      C
      ISN 0009            END                                                                  00056380
```

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 8, PROGRAM SIZE = 282, SUBPROGRAM NAME = CONST

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ******

126K BYTES OF CORE NOT USED

```
LEVEL 2.2  (SEPT 76)      DBLEV                OS/[illegible] FORTRAN H [illegible]NDE[illegible]          DA[illegible] 10.2   9.0[illegible]          [illegible]AGE

REQUESTED [illegible]TIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,[illegible]BJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
A       0003
I       0003
X       0002  0004  0004  0006  0006
A1      0003  0004
A2      0003  0006
B1      0003  0004
B2      0003  0006
FI      0003
IT      0003
ADT     0003
ALC     0003
ALO     0003  0004  0006
CZD     0003
DBK     0003
PGF     0003
VAF     0003
VGF     0003
AREA    0003
CON0    0003
CON2    0003
IVAF    0003
IVBD    0003
IVGF    0003
JPGF    0003
LANE    0003
LIFE    0003
MYRE    0003
PGFO    0003
REMO    0003
VINC    0003
VPOP    0003
XINC    0003
YINC    0003
BVPOP   0003
DBLEV   0002  0004  0006
JWYLE   0003
MODYR   0003
MYREF   0003
VBD74   0003
VBD77   0003
VBD85   0003
VBD90   0003
WIDTH   0003
XKINK   0003  0004  0006
ALOG10  0004  0006
FPAREA  0003
FPROAD  0003
IEQAGE  0003
```

```
                                  / STRUCTURED SOURCE LISTING /
(001  ISN 0002          FUNCTION DBLEV(X)                                                  00090900
                        C GIVEN X,RETURN DBLEV AT X. WYLE CURVE READER, INVERSE TO RAD     00091000
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMU(6,17),XINC(7),YINC(7),    00091100
                  B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                       00091120
                  B1   3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                       00091140
                  B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                            00091160
                  B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                        00091180
                  B1   6XKINK,A1,A2,B1,B2,ALO,CON0,CON2,IVAF(14),                           00091200
                  B1   7MYREF(6),IVBD(14),LIFE(4),IEDAGE(6),JWYLE(9,4),                     00091220
                  B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I                      00091240
      ISN 0004          IF(X.LE.XKINK)DBLEV=ALO-A1*ALOG10(X)-B1                             00091400
      ISN 0006          IF(X.GT.XKINK)DBLEV=ALO-A2*ALOG10(X)-B2                             00091500
      ISN 0008          RETURN                                                              00091600
 001)                   C
      ISN 0009          END                                                                 00091700

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       8, PROGRAM SIZE =      364, SUBPROGRAM NAME = DBLEV

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

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```
LEVEL 2.[illegible] (SEPT 76)        FACTOR          OS/360  FORTRAN H E[illegible]ENDED          DATE 80.2.[illegible].9.05.[illegible]        [illegible]AGE

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
DR      0002  0005
GAM     0002  0003  0005  0005
DFCL    0002  0005
FACTOR  0002  0003  0005


                                        / STRUCTURED SOURCE LISTING /
(001  ISN 0002          FUNCTION FACTOR(GAM,DR,DFCL)                                    00056400
                        CX FACTOR  LAST UPDATE:                                         00056500
                        C                                                               00056700
                        C FACTOR COMPUTES (DR/C)**GAM                                   00056800
                        C                                                               00056900
      ISN 0003          IF(GAM.EQ. 0.0E0)FACTOR= 1.0E0                                  00057000
      ISN 0005          IF(GAM.NE. 0.0E0)FACTOR=(DR/DFCL)**GAM                          00057100
      ISN 0007          RETURN                                                          00057200
                        C       DEBUG SUBCHK,TRACE,INIT,SUBTRACE                        00057300
 001)                   C
      ISN 0008          END                                                             00057400


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       7, PROGRAM SIZE =      292, SUBPROGRAM NAME =FACTOR

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS																	
A	0003																		
I	0012	0013	0013	0013	0014	0014	0014	0015	0015	0017	0017	0018	0018	0018	0022	0023	0023	0023	0024
	0024	0024	0025	0025	0026														
A1	0003																		
A2	0003																		
B1	0003																		
B2	0003																		
FI	0003																		
II	0003																		
IT	0003																		
ADT	0003																		
ALC	0003																		
ALO	0003																		
CZD	0003																		
DBK	0003																		
FIX	0002																		
PGF	0003																		
SUM	0007	0017																	
VAF	0003																		
VGF	0003																		
AREA	0003																		
CON0	0003																		
CON2	0003																		
IVAF	0003																		
IVBD	0003																		
IVGF	0003																		
JPGF	0003																		
LANE	0003																		
LIFE	0003																		
MYRE	0003																		
PGF0	0003																		
REMD	0003																		
VINC	0003	0014	0024																
VPOP	0003																		
XINC	0003	0013	0023																
YINC	0003	0008	0009	0018	0026														
BVPOP	0003																		
ICONT	0004	0005																	
IDUMP	0004																		
JMYLE	0003																		
KMASK	0004																		
MODYR	0003																		
MYREF	0003																		
RNAME	0004																		
VBD74	0003	0014	0024																
VBD77	0003	0013	0014	0023	0024														
VBD85	0003	0007	0007	0007	0007	0007	0008	0009	0013	0017	0018	0023	0025						
VBD90	0003	0010	0011	0017	0018	0025													
WIDTH	0003																		

```
                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
XKINK   0003
FPAREA  0003
FPROAD  0003
IEQAGE  0003
IPRINT  0004
IVMASK  0004


                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 LABEL   DEFINED   REFERENCES
 1000    0019      0012  0015
 2000    0021      0005
 3000    0027      0022


                                  / STRUCTURED SOURCE LISTING /
(003  ISN 0002          SUBROUTINE FIX                                                  00064100
                        CX FIX     LAST UPDATE:      11/01/78 11:17:05                  00064110
                        C THIS SUBROUTINE COMPUTES THE NEW ARRAY YINC TO FIX FUNCTION  VBD  00064200
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),  00064310
                  B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                    00064320
                  B1   3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                    00064330
                  B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                         00064340
                  B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                     00064350
                  B1   6XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),                        00064360
                  B1   7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),                  00064370
                  B1   8JPGF(9),LANE(9,6),MYRE(14),IVGP(14),MODYR,IT,II                  00064380
      ISN 0004          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6), 00064500
                  B4   2ICONT(12)                                                        00064510
                        C                                                                00064600
                        C FIXES VBD SO THAT CATEGORIES 1 AND 3 DIE AFTER 1990            00064700
                        C VBD       LAST UPDATE:  10/18/78  16:14:37                     00064800
                        C                                                                00064820
      ISN 0005          IF(ICONT(4).EQ.1) GOTO 2000                                      00064840
                        C                                                                00064860
      ISN 0007             SUM  =              VBD85(2)              + VBD85(4)            00064900
                      1    + VBD85(5) + VBD85(6) + VBD85(7)                                00065000
      ISN 0008             YINC (1) = -VBD85(1) / 5.0E0                                    00065010
      ISN 0009             YINC (3) = -VBD85 (3)/ 5.0E0                                    00065020
      ISN 0010             VBD90(1) = 0.0E0                                                00065030
      ISN 0011             VBD90(3) = 0.0E0                                                00065040
                           C                                                               00065100
                           C RENORMALIZE THE REST OF YINC ACCORDING TO VBD85               00065120
                           C                                                               00065140
      ISN 0012             DO 1000 I = 1,7                                                 00065160
                           C                                                               00065180
(001  ISN 0013             XINC(I) = (VBD85(I)-VBD77(I)) / 8.0                             00065240
      ISN 0014             VINC(I) = (VBD77(I)-VBD74(I)) / 3.0                             00065260
      ISN 0015             IF(I.EQ.1.OR.I.EQ.3) GOTO 1000                                  00065414
      ISN 0017                VBD90(I) = VBD85(I) / SUM                                      00065420
      ISN 0018                YINC(I)  = (VBD90(I) - VBD85(I)) / 5.0E0                       00065430
                              C                                                              00065440
      ISN 0019     1000    CONTINUE                                                       00065450
                           C                                                               00065460
 001)                      C
```

```
      ISN 0020              RETURN                                                                  00065600
                            C                                                                       00065620
      ISN 0021      2000  CONTINUE                                                                 00065640
                          C                                                                        00065660
      ISN 0022            DO 3000 I = 1,7                                                          00065680
                          C                                                                        00065690
(002  ISN 0023            XINC(I) = (VBD85(I)-VBD77(I)) / 8.0                                      00065700
      ISN 0024            VINC(I) = (VBD77(I)-VBD74(I)) / 3.0                                      00065710
      ISN 0025            VBD90(I) = VBD85(I)                                                      00065730
      ISN 0026            YINC(I)  = 0.0E0                                                         00065740
                          C                                                                        00065750
      ISN 0027      3000  CONTINUE                                                                 00065760
 002)                     C
      ISN 0028            RETURN                                                                   00065770
 003)                     C
      ISN 0029            END                                                                      00065780


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      28, PROGRAM SIZE =      516, SUBPROGRAM NAME =   FIX

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS								
J	0015	0015	0015	0021	0021	0021	0024	0024	0024
NAT	0003								
NHT	0003								
NSR	0003								
NVT	0003								
DDBA	0003								
HEAD	0004	0004	0021	0024					
MILE	0003								
MYRB	0003								
NIDD	0003								
NLEV	0003								
NYRN	0003								
VTOT	0003								
ALREG	0003								
ALNPJ	0003								
ALNPK	0003								
ENIDB	0003								
EXPDB	0003								
GVTOT	0003								
MYREG	0003								
NIGDB	0003								
PEXPJ	0003								
PEXPK	0003								
PIMPJ	0003								
PIMPK	0003								
TOPOP	0003								
ALNPOP	0003								
HEADER	0002								
ITABLE	0003								
MYRNET	0003								
POPDEN	0003								
POPEXP	0003								
POPIMP	0003								
POPLTN	0003								
$TOPGF	0003								

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES			
1003	0006	0005			
1004	0009	0008			
1005	0012	0011			
1007	0016	0015			
1010	0022	0021			
1011	0025	0024			
1013	0029	0019	0028		
2006	0031	0014	0018	0020	0027
2007	0032	0017	0023	0026	
2010	0033	0007			

*****FORTRAN CROSS REFERENCE LISTING*****

LABEL	DEFINED	REFERENCES
2011	0034	0010 0013

/ STRUCTURED SOURCE LISTING /

```
(002  ISN 0002            SUBROUTINE HEADER                                                    00112550
                          CX HEADER  LAST UPDATE:                                              00112560
                          C THIS SUBROUTINE PRINTS A COMMON HEADER FOR ALL POPULATION TABLES   00112570
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DOBA(16),        00112600
                     B2   2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                            00112610
                     B2   3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                       00112620
                     B2   4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STOPGF(9,9),                     00112630
                     B2   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                       00112640
                     B2   6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                            00112650
                     B2   7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,N3R,N16DB,                         00112660
                     B2   8ITABLE                                                             00112670
      ISN 0004            REAL*8  HEAD(9,2)/'  OVER  ','  1000- ','  500-  ','  200-  ',     00112700
                          C'  100-  ','   50-  ','   25-  ','   5-   ','        ',           00112750
                          C2A'  2000  ','  1000  ','   500  ','   200  ','   100  ',         00112800
                          C'   50   ','   25   ',' RURAL  '/                                  00112850
      ISN 0005            WRITE(6,1003)                                                        00112900
      ISN 0006      1003  FORMAT(' ',112('_'))                                                 00112950
      ISN 0007            WRITE(6,2010)                                                        00113000
      ISN 0008            WRITE(6,1004)                                                        00113050
      ISN 0009      1004  FORMAT(' ',T48,'AREA TYPE,J1)                                       00113100
      ISN 0010            WRITE(6,2011)                                                        00113150
      ISN 0011            WRITE(6,1005)                                                        00113200
      ISN 0012      1005  FORMAT('+',T21,93('_'))                                            00113250
      ISN 0013            WRITE(6,2011)                                                        00113300
      ISN 0014            WRITE(6,2006)                                                        00113350
      ISN 0015            WRITE(6,1007)(J,J=1,9)                                               00113400
(001)                     C                                                                    00113450
      ISN 0016      1007  FORMAT(' ',T20,9(I6,3X),T105,'ALL J')                               00113500
      ISN 0017            WRITE(6,2007)                                                        00113550
      ISN 0018            WRITE(6,2006)                                                        00113600
      ISN 0019            WRITE(6,1013)                                                        00113650
      ISN 0020            WRITE(6,2006)                                                        00113700
      ISN 0021            WRITE(6,1010)(HEAD(J,1),J=1,9)                                       00113750
 002)                     C                                                                    00113800
      ISN 0022      1010  FORMAT(' ',T6,'PLACE SIZE,',T22,9(A8,1X))                           00113850
      ISN 0023            WRITE(6,2007)                                                        00113900
      ISN 0024            WRITE(6,1011)(HEAD(J,2),J=1,9)                                       00113950
      ISN 0025      1011  FORMAT(' ',T7,'THOUSANDS',T22,9(A8,1X))                            00114000
      ISN 0026            WRITE(6,2007)                                                        00114050
      ISN 0027            WRITE(6,2006)                                                        00114100
      ISN 0028            WRITE(6,1013)                                                        00114150
      ISN 0029      1013  FORMAT('+',112('_'))                                               00114200
      ISN 0030            RETURN                                                               00114250
      ISN 0031      2006  FORMAT(' ','|',T21,'|',9(8X,'|'),10X,'|')                          00114300
      ISN 0032      2007  FORMAT('+','|',T21,'|',9(8X,'|'),10X,'|')                          00114350
      ISN 0033      2010  FORMAT(' ','|',T21,'|',T102,'|',T113,'|')                          00114400
      ISN 0034      2011  FORMAT('+','|',T21,'|',T102,'|',T113,'|')
      ISN 0035            END
```

*OPTIONS ... EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

```
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*     SOURCE STATEMENTS =      34, PROGRAM SIZE =     1070, SUBPROGRAM NAME =HEADER
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                    116K BYTES OF CORE NOT USED
```

```
LEVEL 2.2  (SEPT 76)      IYBAS          OS/360  FORTRAN H EXTENDED          DATE 80.273/19.06.33      PAGE   1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
NAT     0003
NHT     0003
NSR     0003
NVT     0003
DDBA    0003
MDUM    0002  0004
MILE    0003
MYRB    0003  0004
NIDD    0003
NLEV    0003
NYRN    0003
VTOT    0003
ALREG   0003
ALWPJ   0003
ALWPK   0003
ENIDB   0003
EXPDB   0003
GVTOT   0003
IYBAS   0002  0004
MYREG   0003
N16DB   0003
PEXPJ   0003
PEXPK   0003
PIMPJ   0003
PIMPK   0003
TOPOP   0003
ALWPOP  0003
ITABLE  0003
MYRNET  0003
POPDEN  0003
POPEXP  0003
POPIMP  0003
POPLTN  0003
STOPGF  0003


                                    / STRUCTURED SOURCE LISTING /
C001  ISN 0002          FUNCTION  IYBAS(MDUM)                                                  00065800
                        CX IYBAS   LAST UPDATE:                                                00065810
                        C THIS FUNCTION  CONVERTS STANDARD NOTATION YEAR TO YR WRT BASELINE    00065900
      ISN 0003          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),          00066000
                  B2   2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                                00066010
                  B2   3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                           00066020
                  B2   4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STOPGF(9,9),                         00066030
                  B2   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                           00066040
                  B2   6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                                00066050
                  B2   7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N16DB,                             00066060
                  B2   8ITABLE                                                                 00066070
      ISN 0004          IYBAS=MDUM-MYRB+1                                                      00066100
```

```
     ISN 0005            RETURN                                          00066200
                         C       DEBUG SUBCHK                            00066300
001)                     C                                               00066400
     ISN 0006            END
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LIVECOUNT(60) SIZE(MAX) AUTODBL(NONE)
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*     SOURCE STATEMENTS =        5, PROGRAM SIZE =      274, SUBPROGRAM NAME = IYBAS
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS	
A	0003		
I	0003	0004	0004
A1	0003		
A2	0003		
B1	0003		
B2	0003		
FI	0003		
IT	0003		
ADT	0003		
ALC	0003		
ALO	0003		
CZD	0003		
DBK	0003		
IYR	0002	0004	
PGF	0003		
VAF	0003		
VGF	0003		
AREA	0003		
CON0	0003		
CON2	0003		
IVAF	0003		
IVBD	0003	0004	
IVGF	0003		
IYES	0002	0004	
JPGF	0003		
LANE	0003		
LIFE	0003		
MYRE	0003	0004	
PGF0	0003		
REM0	0003		
VINC	0003		
VPOP	0003		
XINC	0003		
YINC	0003		
BVPOP	0003		
JWYLE	0003		
MODYR	0003		
MYREF	0003	0004	
VBD74	0003		
VBD77	0003		
VBD85	0003		
VBD90	0003		
WIDTH	0003		
XKINK	0003		
FPAREA	0003		
FPROAD	0003		
IEQAGE	0003		

```
                                  / STRUCTURED SOURCE LISTING /
(001  ISN 0002          FUNCTION  IYES(IYR)                                                  00069200
                        CX IYES    LAST UPDATE:                                              00069210
                        C THIS FUNCTION  CONVERTS YEAR WRT REF TO YEARS WRT MYRE             00069300
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),      00069400
                  B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                        00069410
                  B1   3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                        00069420
                  B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                             00069430
                  B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                         00069440
                  B1   6XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),                            00069450
                  B1   7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),                      00069460
                  B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I                       00069470
      ISN 0004          IYES=IYR-MYRE(I)+MYREF(IVBD(I))                                      00069800
      ISN 0005          RETURN                                                               00069900
                        C       DEBUG SUBCHK                                                 00070000
 001)                   C
      ISN 0006          END                                                                  00070100


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       5, PROGRAM SIZE =      272, SUBPROGRAM NAME =  IYES

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS
A	0003	
I	0003	0004
A1	0003	
A2	0003	
B1	0003	
B2	0003	
FI	0003	
IT	0003	
ADT	0003	
ALC	0003	
ALO	0003	
CZO	0003	
DBK	0003	
PGF	0003	
VAF	0003	
VGF	0003	
AREA	0003	
CON0	0003	
CON2	0003	
IVAF	0003	
IVBD	0003	0004
IVGF	0003	
JPGF	0003	
LANE	0003	
LIFE	0003	
MDUM	0002	0004
MYRE	0003	
PGF0	0003	
REMU	0003	
VINC	0003	
VPOP	0003	
XINC	0003	
YINC	0003	
BVPOP	0003	
IYREF	0002	0004
JMYLE	0003	
MODYR	0003	
MYREF	0003	0004
VBD74	0003	
VBD77	0003	
VBD85	0003	
VBD90	0003	
WIDTH	0003	
XKINA	0003	
FPAREA	0003	
FPROAD	0003	
IEQAGE	0003	

```
                                  / STRUCTURED SOURCE LISTING /
(001  ISN 0002          FUNCTION  IYREF(MDUM)                                                  00066500
                        CX IYREF   LAST UPDATE:                                                00066510
                        C THIS FUNCTION  CONVERT STANDARD YEAR TO YEAR MEASURED WRT REF YEAR   00066600
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMU(6,17),XINC(7),YINC(7),        00066700
                  B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                          00066710
                  B1   3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                          00066720
                  B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                               00066730
                  B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                           00066740
                  B1   6XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),                              00066750
                  B1   7MYREF(6),IVBD(14),LIFE(4),IEGAGE(6),JKYLE(9,4),                        00066760
                  B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I                         00066770
      ISN 0004          IYREF=MDUM-MYREF(IVBD(I))+1                                            00067100
                        C        DEBUG SUBCHK                                                  00067200
      ISN 0005          RETURN                                                                 00067300
 001)                   C
      ISN 0006          END                                                                    00067400

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       5, PROGRAM SIZE =      266, SUBPROGRAM NAME = IYREF

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

```
 LEVEL 2.2  (SEPT 76)   PRINT1          OS/360  FORTRAN H EXTENDED          DATE 80.273/19.08.23      PAGE   1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                          *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
SYMBOL   INTERNAL STATEMENT NUMBERS
XLINE    0003  0006  0008
PRINT1   0002


                          *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
 LABEL    DEFINED    REFERENCES
   98       0011       0006
   99       0006       0010
  100       0007       0006
  101       0009       0008
  103       0005       0004


                                                / STRUCTURED SOURCE LISTING /
(002  ISN 0002              SUBROUTINE PRINT1                                                    00071600
                            CX PRINT1  LAST UPDATE:      10/19/78 14:52:52                       00071610
                            C PRINTS A HEADING FOR ALL THE OUTPUT TABLES                         00071630
      ISN 0003              DIMENSION XLINE(18)                                                  00071640
      ISN 0004              WRITE(6,103)                                                         00071650
      ISN 0005        103   FORMAT('1')                                                          00071660
(001  ISN 0006        99    READ(4,100,END=98)XLINE                                              00071690
      ISN 0007        100   FORMAT(18A4)                                                         00071700
      ISN 0008              WRITE(6,101)XLINE                                                    00071710
      ISN 0009        101   FORMAT(' ',30X,18A4)                                                 00071720
      ISN 0010              GO TO 99                                                             00071730
 001)                       C
      ISN 0011        98    RETURN                                                             00071740
 002)                       C
      ISN 0012              END                                                                00071750


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =       11, PROGRAM SIZE =       362, SUBPROGRAM NAME =PRINT1

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS			
I	0008	0009	0009	
K	0013	0014	0014	
IYR	0024	0024	0024	
NAT	0003			
NHT	0003	0013		
NSR	0003			
NVT	0003	0008		
ODBA	0003			
MILE	0003			
MYRB	0003			
NIDU	0003			
NLEV	0003			
NYRN	0003	0024	0024	
VTOT	0003			
ALREG	0003			
ALWPJ	0003			
ALWPK	0003			
ENIDB	0003			
EXPDB	0003			
GVTOT	0003			
ICONT	0004	0022		
IDUMP	0004	0018		
KMASK	0004	0014		
MYREG	0003			
N160B	0003			
PEXPJ	0003			
PEXPK	0003			
PIMPJ	0003			
PIMPK	0003			
RNAME	0004	0006		
TOPOP	0003			
ALWPUP	0003			
IPRINT	0004	0020		
ITABLE	0003	0005	0005	0006
IVMASK	0004	0009		
MYKNET	0003	0024		
POPDEN	0003			
POPEXP	0003			
POPIMP	0003			
POPLTN	0003			
PRINT2	0002			
STOPGF	0003			

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
999	0007	0006
1000	0012	0008
1001	0017	0013

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
2000	0011	0009
2001	0016	0014
2002	0019	0018
2003	0021	0020
2004	0025	0024
2005	0023	0022

/ STRUCTURED SOURCE LISTING /

```
(003  ISN 0002            SUBROUTINE  PRINT2                                                    00118000
                          CX PRINT2  LAST UPDATE=      10/19/78 16:13:14                        00118100
                          C                                                                     00118200
                          CL PRINT2  LAST CHANGE= CORRECTED WRONG STMNT NUMBER 200              00118300
                          C                                                                     00118400
                          C  THIS SUBROUTINE PRINTS THE CONTROL STRINGS                         00118500
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),         00118600
                     B2   2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                              00118700
                     B2   3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                        00118800
                     B2   4PEXPJ(9,9),ALWPJ(9,9),POPLIN(4,9),BTOPGF(9,9),                      00118900
                     B2   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                        00119000
                     B2   6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                             00119100
                     B2   7MYRNET(9),MYRB,NYKN,NVT,NAT,NHT,NSR,N16DB,                          00119200
                     B2   8ITABLE=                                                             00119300
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),    00119400
                     B4   2ICONT(12)                                                           00119402
                                                                                               00119410
      ISN 0005            ITABLE = ITABLE + 1                                                   00119420
      ISN 0006            WRITE(6,999) ITABLE,RNAME                                             00119430
      ISN 0007      999   FORMAT('1'/'0     TABLE ',I2,'  LISTING OF CONTROL STRINGS '/       00119435
                          *'AND NET YEARS',T110,5A4)                                            00119440
                          C                                                                     00119450
                          C FIRST PRINT VEHICLE MASK                                            00119500
                          C                                                                     00119600
      ISN 0008            DO 1000 I=1,NVT                                                       00119700
                          C                                                                     00119800
(002  ISN 0009            IF(IVMASK(I).EQ.0) WRITE(6,2000) I                                    00119900
      ISN 0011      2000  FORMAT('0',4X,'VEHICLE TYPE  ',I2,' SUPPRESSED')                      00120000
                          C                                                                     00120100
      ISN 0012      1000  CONTINUE                                                            00120200
                          C                                                                     00120300
                          C NO DO ROADWAY TYPE                                                  00120400
                          C                                                                     
 002)                     C                                                                     
      ISN 0013            DO 1001 K=1,NHT                                                       00120500
                          C                                                                     00120600
(001  ISN 0014            IF(KMASK(K).EQ.0)  WRITE(6,2001) K                                    00120700
      ISN 0016      2001  FORMAT('0','     ROADWAY TYPE ',I2,' SUPPRESSED.')                    00120800
                          C                                                                     00120900
      ISN 0017      1001  CONTINUE                                                            00121000
                          C                                                                     00121100
                          C NOW PRINT DUMP CONTROL                                              00121200
                          C                                                                     00121300
 001)                     C                                                                     
      ISN 0018            WRITE(6,2002) IDUMP                                                   00121400
      ISN 0019      2002  FORMAT('0','     DUMP CONTROL STRING IS ',12I1)                       00121500
                          C                                                                     00121600
```

```
                    C NOW PRINT IPRINT, THE TABULATION CONT... STRING                    00121700
                    C                                                                    00121800
     ISN 0020       WRITE(6,2003) IPRINT                                                 00121900
     ISN 0021  2003 FORMAT('0','     PRINT CONTROL STRING IS ',12I1)                     00122000
     ISN 0022       WRITE(6,2005) ICONT                                                  00122010
     ISN 0023  2005 FORMAT('0',' ICONT LOGIC CONTROL STRING IS ',12I1)
                    C                                                                    00122100
                    C NOW PRINT THE NET YEARS                                            00122200
                    C                                                                    00122300
     ISN 0024       WRITE(6,2004) NYRN,(MYRNET(IYR),IYR=1,NYRN)                          00122400
003)                C
     ISN 0025  2004 FORMAT('0','     THERE ARE ',I2,' NET YEARS:'/'      ',              00122500
                   C9(I4,','))                                                           00122600
                    C                                                                    00122700
     ISN 0026       RETURN                                                               00122800
     ISN 0027       END                                                                  00122900


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      26, PROGRAM SIZE =      962, SUBPROGRAM NAME =PRINT2

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
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REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****FORTRAN CROSS REFERENCE LISTING*****

SYMBOL	INTERNAL STATEMENT NUMBERS																	
J	0019	0019	0019	0038	0039	0041	0041	0043	0044	0044	0044	0047	0047	0047	0055	0056	0058	0058	0058
	0076	0076	0078	0081	0081	0081	0083	0083	0083	0084	0087	0087	0087	0094	0095	0098	0098	0098	
K	0073	0076	0081	0087															
L	0080	0081																	
ID	0017	0019	0019	0036	0039	0041	0041	0043	0044	0047	0047	0079	0081						
NAT	0003	0038	0055	0058	0075	0087	0094	0098											
NHT	0003	0073																	
NSR	0003	0080																	
NVT	0003																		
POP	0005	0039	0044	0044	0056	0058													
DDBA	0003																		
GTOT	0054	0056	0056	0058															
MILE	0003	0081																	
MSUM	0093	0095	0095	0098															
MYRB	0003																		
NIDD	0003	0041																	
NLEV	0003																		
NYRN	0003																		
VTOT	0003																		
ALREG	0003																		
ALMPJ	0003																		
ALMPK	0003																		
ENIDB	0003																		
EXPDB	0003																		
GVTOT	0003																		
ICONT	0004																		
IDUMP	0004																		
ITABS	0007	0008	0025	0025	0026														
JMILE	0005	0076	0083	0083	0095	0098													
KMASK	0004																		
KMILE	0074	0084	0084	0087															
MYREG	0003																		
N16DB	0003																		
PEXPJ	0003																		
PEXPK	0003																		
PIMPJ	0003																		
PIMPK	0003																		
POPID	0037	0043	0043	0047															
RNAME	0004	0008	0026	0064															
TOPOP	0003																		
ALMPOP	0003																		
HEADER	0010	0028	0066																
IPRINT	0004																		
ITABLE	0003	0006	0006	0008	0026	0063	0063	0064											
IVMASK	0004																		
MILEJK	0005	0078	0081	0081	0083	0084	0087												
MYRNET	0003																		
POPDEN	0003	0019																	
POPEXP	0003																		

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS
POPIMP	0003
POPLIN	0003 0041 0043 0044 0047
PRINT3	0002
STOPGF	0003

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1000	0027	0026
1001	0065	0064
2000	0009	0008
2001	0013	0012
2002	0035	0016 0024 0034 0052 0062 0072 0092 0102
2003	0022	0017
2004	0020	0019
2006	0104	0018 0023 0046 0051 0053 0061 0086 0091 0097 0101
2007	0105	0021 0049 0060 0089 0100
2008	0106	0011 0015 0029 0033 0067 0071
2009	0107	0014 0032 0070
2201	0090	0073
2202	0085	0075
2203	0088	0087
2204	0069	0068
2300	0096	0094
2301	0099	0098
2305	0082	0079 0080
3001	0031	0030
3003	0050	0036
3004	0048	0047
3005	0045	0038
3006	0057	0055
3007	0059	0058

/ STRUCTURED SOURCE LISTING /

```
(010  ISN 0002            SUBROUTINE PRINT3                                                    00102600
                          CX PRINT3  LAST UPDATE=      10/19/78 15:42:06                       00102610
                          CL    LAST CHANGE= RENAME                                            00102620
                          C THIS SUBROUTINE PRINTS OUT CONSTANT DATA BY AREA TYPE, J.         00102650
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),       00102700
                     B2   2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                            00102710
                     B2   3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                       00102720
                     B2   4PEXPJ(9,9),ALWPJ(9,9),POPLIN(4,9),STOPGF(9,9),                     00102730
                     B2   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                       00102740
                     B2   6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                            00102750
                     B2   7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N160B,                         00102760
                     B2   8ITABLE                                                             00102770
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),  00102800
                     B4   2ICONT(12)                                                          00102900
      ISN 0005            DIMENSION POP(9),MILEJK(9),JMILE(9)                                  00103000
                          C                                                                    00103050
                          C NOW PRINT THE BASELINE POPULATION DENSITIES BY J AND ID            00103100
                          C                                                                    00103150
      ISN 0006            ITABLE=ITABLE+1                                                      00103160
      ISN 0007            ITABS=1                                                              00103200
```

```
      ISN 0008                WRITE(6,2000) ITABLE,ITABS,RNAME                                  00103300
      ISN 0009          2000  FORMAT('1'/'0     TABLE ',I2,'.',I2,'  BASELINE POPULATION ',  00103350
     *'DENSITY BY AREA AND DENSITY TYPE',T110,5A4/'0'/'0')                                     00103400
      ISN 0010                CALL HEADER                                                     00103450
      ISN 0011                WRITE(6,2008)                                                   00103500
      ISN 0012                WRITE(6,2001)                                                   00103550
      ISN 0013          2001  FORMAT(' ',T4,' ID ',T11,'VARIABLE',T48,'POPULATION  DENSITY,IN T  00103600
     *HOUSANDS PER SQ.MI.')                                                                   00103650
      ISN 0014                WRITE(6,2009)                                                   00103700
      ISN 0015                WRITE(6,2008)                                                   00103750
      ISN 0016                WRITE(6,2002)                                                   00103800
      ISN 0017                DO 2003 ID=1,4                                                  00103850
(009  ISN 0018                WRITE(6,2006)                                                   00103900
      ISN 0019                WRITE(6,2004)ID,(POPDEN(ID,J),J=1,9)                            00103950
      ISN 0020          2004  FORMAT(' ',T4,I4,T23,9(-3PF6.2,3X))                             00104000
      ISN 0021                WRITE(6,2007)                                                   00104050
      ISN 0022          2003  CONTINUE                                                       00104100
009)                          C                                                             00104150
      ISN 0023                WRITE(6,2006)                                                   00104200
      ISN 0024                WRITE(6,2002)                                                   00104250
                              C                                                             00104300
                              C NOW PRINT THE BASELINE POPULATION BY AREA AND DENSITY TYPE   00104350
                              C                                                             00104400
      ISN 0025                ITABS=ITABS+1                                                   00104450
      ISN 0026                WRITE(6,1000) ITABLE,ITABS,RNAME                                00104500
      ISN 0027          1000  FORMAT('1'/'0     TABLE ',I2,'.',I2,'  BASELINE POPULATION ',  00104550
     *'BY AREA AND DENSITY TYPE',T110,5A4/'0'/'0')                                           00104600
      ISN 0028                CALL HEADER                                                     00104650
      ISN 0029                WRITE(6,2008)                                                   00104700
      ISN 0030                WRITE(6,3001)                                                   00104750
      ISN 0031          3001  FORMAT(' ',T4,' ID ',T11,'VARIABLE',T48,'POPULATION, MILLIONS',  00104800
     *T105,'TOTAL')                                                                          00104850
      ISN 0032                WRITE(6,2009)                                                   00104900
      ISN 0033                WRITE(6,2008)                                                   00104950
      ISN 0034                WRITE(6,2002)                                                   00105000
      ISN 0035          2002  FORMAT('+',112('_'))                                           00105050
      ISN 0036                DO 3003 ID=1,4                                                  00105100
(008  ISN 0037                POPID= 0.0E0                                                    00105150
      ISN 0038                DO 3005 J=1,NAT                                                 00105200
(004  ISN 0039                IF(ID.EQ.1)POP(J)= 0.0E0                                        00105250
      ISN 0041                IF(ID.GT.NIDD(J))  POPLTN(ID,J)=0.0                             00105300
      ISN 0043                POPID=POPID+POPLTN(ID,J)                                        00105350
      ISN 0044                POP(J)=POP(J)+POPLTN(ID,J)                                      00105400
      ISN 0045          3005  CONTINUE                                                       00105450
004)                          C                                                             00105500
      ISN 0046                WRITE(6,2006)                                                   00105550
      ISN 0047                WRITE(6,3004)ID,(POPLTN(ID,J),J=1,9),POPID                      00105600
      ISN 0048          3004  FORMAT(' ',T4,I4,T23,9(-6PF6.2,3X),-6PF8.2)                    00105650
      ISN 0049                WRITE(6,2007)                                                   00105700
      ISN 0050          3003  CONTINUE                                                       00105750
008)                          C                                                             00105800
      ISN 0051                WRITE(6,2006)                                                   00105850
      ISN 0052                WRITE(6,2002)                                                   00105900
      ISN 0053                WRITE(6,2006)                                                   00105950
      ISN 0054                GTOT= 0.0E0                                                     00106000
      ISN 0055                DO 3006 J=1,NAT                                                 00106050
(007  ISN 0056                GTOT=GTOT+POP(J)                                                00106100
      ISN 0057          3006  CONTINUE                                                       00106150
```

```
 007)                    C
      ISN 0058            WRITE(6,3007)(POP(J),J=1,NAT),GTOT                                  00106000
(006  ISN 0059      3007  FORMAT(' ',T11,'TOTAL',T23,9(-6PF6.2,3X),-6PF8.2)                   00106050
      ISN 0060            WRITE(6,2007)                                                       00106100
      ISN 0061            WRITE(6,2006)                                                       00106150
      ISN 0062            WRITE(6,2002)                                                       00106200
                          C                                                                   00106250
                          C NOW PRINT THE JK MILEAGE TABLE                                    00106300
                          C                                                                   00106350
      ISN 0063            ITABLE=ITABLE+1                                                     00106400
      ISN 0064            WRITE(6,1001) ITABLE,RNAME                                          00106410
      ISN 0065      1001  FORMAT('1'/'0      TABLE ',I2,'  MILEAGE OF ROADWAY, BY AREA ',     00106420
                         *'AND ROADWAY TYPE',T110,5A4/'0'/'0')                                00106430
      ISN 0066            CALL HEADER                                                         00106440
      ISN 0067            WRITE(6,2008)                                                       00106450
      ISN 0068            WRITE(6,2204)                                                       00106460
      ISN 0069      2204  FORMAT(' ',T4,' K  ',T48,' MILES OF ROADWAY')                       00106470
      ISN 0070            WRITE(6,2009)                                                       00106480
      ISN 0071            WRITE(6,2008)                                                       00106490
      ISN 0072            WRITE(6,2002)                                                       00106500
      ISN 0073            DO 2201 K=1,NHT                                                     00106510
      ISN 0074            KMILE=0                                                             00106520
      ISN 0075            DO 2202 J=1,NAT                                                     00106530
(003  ISN 0076            IF(K.EQ.1)JMILE(J)=0                                                00106540
      ISN 0078            MILEJK(J)=0                                                         00106550
      ISN 0079            DO 2305 ID=1,4                                                      00106560
(002  ISN 0080            DO 2305 L=1,NSR                                                     00106570
(001  ISN 0081            MILEJK(J)=MILEJK(J)+MILE(K,J,ID,L)                                  00106580
      ISN 0082      2305  CONTINUE                                                            00106590
 001)                     C
 002)                     C
      ISN 0083            JMILE(J)=JMILE(J)+MILEJK(J)                                         00106600
      ISN 0084            KMILE=KMILE+MILEJK(J)                                               00106610
      ISN 0085      2202  CONTINUE                                                            00106620
 003)                     C
      ISN 0086            WRITE(6,2006)                                                       00106630
      ISN 0087            WRITE(6,2203)K,(MILEJK(J),J=1,NAT),KMILE                            00106640
      ISN 0088      2203  FORMAT(' ',T4,I4,T22,9(I7,2X),I9)                                   00106650
      ISN 0089            WRITE(6,2007)                                                       00106660
      ISN 0090      2201  CONTINUE                                                            00106670
 006)                     C
      ISN 0091            WRITE(6,2006)                                                       00106680
      ISN 0092            WRITE(6,2002)                                                       00106690
      ISN 0093            MSUM=0                                                              00106700
      ISN 0094            DO 2300 J=1,NAT                                                     00106710
(005  ISN 0095            MSUM=MSUM+JMILE(J)                                                  00106720
      ISN 0096      2300  CONTINUE                                                            00106730
 005)                     C
      ISN 0097            WRITE(6,2006)                                                       00106740
      ISN 0098            WRITE(6,2301)(JMILE(J),J=1,NAT),MSUM                                00106750
 010)                     C
      ISN 0099      2301  FORMAT(' ',T11,'TOTAL',T22,9(I7,2X),I9)                             00106760
      ISN 0100            WRITE(6,2007)                                                       00106770
      ISN 0101            WRITE(6,2006)                                                       00106780
      ISN 0102            WRITE(6,2002)                                                       00106790
      ISN 0103            RETURN                                                              00108400
                          C ZE DO-ALL FORMATS FOLLOW                                          00108450
      ISN 0104      2006  FORMAT(' ','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')                    00108500
```

```
      ISN 0105     2007  FORMAT('+','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')                    00108550
      ISN 0106     2008  FORMAT(' ','|',T9,'|',T21,'|',T102,'|',T113,'|')                   00108600
      ISN 0107     2009  FORMAT('+','|',T9,'|',T21,'|',T102,'|',T113,'|')                   00108650
      ISN 0108           END                                                                00108700

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =     107, PROGRAM SIZE =     3050, SUBPROGRAM NAME *PRINT3

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  106K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL STATEMENT NUMBERS																		
I	0011	0013	0016	0033	0036	0049	0051	0051	0072	0075	0087	0089	0089						
L	0048	0049	0051	0051	0054	0056	0056												
M	0021	0024	0026	0033	0036	0039	0042	0049	0051	0051	0054	0056	0056						
II	0024	0024	0024	0026	0026	0026	0065	0065	0065	0065	0065	0065							
II	0013	0016	0039	0042	0054	0056	0056	0078	0081	0092	0094	0094							
MAT	0003																		
MMT	0003																		
MBR	0003																		
MVT	0003																		
DDBA	0003																		
MEAD	0006	0006	0049	0051	0054	0056													
ILEV	0036	0036	0036	0042	0042	0042	0049	0049	0051	0051	0051	0054	0054	0056	0056	0056	0075	0075	0075
	0081	0081	0081	0087	0087	0089	0089	0089	0092	0092	0094	0094	0094						
MILE	0003																		
MYRB	0003	0009	0034	0036	0040	0042	0073	0075	0079	0081									
NIOD	0003																		
NLEV	0003	0033	0039	0072	0078														
NYRN	0003																		
VTOT	0003																		
ZERO	0007	0049	0054	0087	0092														
ALREG	0003	0051	0056	0089	0094														
ALMPJ	0003																		
ALMPK	0003																		
ENIDB	0003																		
EXPDB	0003																		
GVTOT	0003																		
ICONT	0004																		
IDUMP	0004																		
ITABB	0008	0012	0012	0014															
KMASK	0004																		
MYREG	0003	0036	0042	0075	0081														
NIODB	0003																		
PEXPJ	0003																		
PEXPK	0003																		
PIMPJ	0003																		
PIMPK	0003																		
ANAME	0004	0014																	
IDPOP	0003																		
ALMPOP	0003																		
HEADER	0005	0005	0024	0026	0065	0065													
IPRINT	0004																		
ITABLE	0003	0010	0010	0014															
IVMASK	0004	0049	0051	0054	0056	0087	0089	0092	0094										
MLEVEL	0039	0040	0042	0042	0054	0056	0078	0079	0081	0081	0092	0094							
MYRNET	0003																		
NLEVEL	0033	0034	0036	0036	0049	0051	0072	0073	0075	0075	0087	0089							
POPDEA	0003																		
POPEXP	0003																		
POPIMP	0003																		

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

```
SYMBOL  INTERNAL STATEMENT NUMBERS
POPLTN  0003
PRINT4  0002
STOPGF  0003
```

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES									
1593	0022										
8025	0100	0011									
8026	0015	0014									
8027	0017	0016									
8028	0019	0018									
8029	0063	0021									
8030	0025	0024									
8031	0027	0026									
8032	0038	0034	0036								
8033	0044	0040	0042								
8034	0060	0048									
8035	0053	0049	0051								
8036	0058	0054	0056								
8037	0066	0065									
8038	0077	0073	0075								
8039	0083	0079	0081								
8040	0091	0087	0089								
8041	0096	0092	0094								
8042	0101	0031	0032	0045	0047	0061	0070	0071	0084	0086	0098
8043	0102	0059	0097								
8044	0103	0023	0029	0064	0068						
8045	0104	0028	0067								
8046	0105	0020	0030	0046	0062	0069	0085	0099			

/ STRUCTURED SOURCE LISTING /

```
(004  ISN 0002            SUBROUTINE PRINT4                                          00083000
                          CX PRINT4  LAST UPDATE:      10/19/78 15:24:397            00083010
                          C                                                          00083100
                          C THE FOLLOWING BLOCK PRINTS OUT THE REGULATION SCENARIO    00083200
                          C                                                          00083300
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),  00083500
               B2    2POPEXP(9),POP1MP(9),ALWPOP(9),TOPOP(9),                        00083510
               B2    3P1MPK(6,9),PEXPK(6,9),ALWPK(6,9),P1MPJ(9,9),                   00083520
               B2    4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STOPGF(9,9),                 00083530
               B2    5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                   00083540
               B2    6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                        00083550
               B2    7MYRNET(9),MYRB,NYRA,NVT,NAT,NHT,NSR,N16DB,                     00083560
               B2    8ITABLE                                                         00083570
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),  00083600
               B4    2ICONT(12)                                                      00083700
      ISN 0005            REAL*8 HEADER(2,4)/'  ACCELE','RATION  ','  DECELE','RATION  ',  00083800
                         C'        ',' CRUISE ','        ','   IDLE '/              00083900
      ISN 0006            REAL*8 HEAD(5,4)/'0-20 MPH','  0-30  ','  0-40  ','  0-50  ',  00084000
                         C'  0-60  ','20-0 MPH','  30-0  ','  40-0  ','  50-0  ','  60-0  ',  00084100
                         C' <25 MPH',' 25-34  ',' 35-44  ',' 45-54  ',' >55   ',5*' '/  00084200
      ISN 0007            DATA ZERO /0.0/                                            00084210
                          C ALSO BEGINNT DAS RICHTIGE STOFF                          00084300
```

```
      ISN 0008          ITABS=0                                                          00084400
      ISN 0009          MYRB=1974                                                        00084410
      ISN 0010          ITABLE=ITABLE+1                                                  00084500
      ISN 0011          DO 8025 I=1,13,2                                                 00084600
(003  ISN 0012          ITABS=ITABS+1                                                    00084700
      ISN 0013          I1=I+1                                                           00084800
      ISN 0014          WRITE(6,8026)ITABLE,ITABS,RNAME                                  00085100
      ISN 0015    8026  FORMAT('1'/'0      TABLE ',I2,'.',I2,'  NOISE EMISSION LEVELS,',  00085200
                       *' IN DBA',T110,5A4)                                              00085300
      ISN 0016          WRITE(6,8027)I,I1                                                00085400
      ISN 0017    8027  FORMAT('0',T21,'TYPE ',I2,T91,'TYPE ',I2)                        00085500
      ISN 0018          WRITE(6,8028)                                                    00085600
      ISN 0019    8028  FORMAT('0')                                                      00085700
      ISN 0020          WRITE(6,8046)                                                    00085800
      ISN 0021          DO 8029 M=1,3                                                    00085900
(002  ISN 0022    1593  CONTINUE                                                         00086000
      ISN 0023          WRITE(6,8044)                                                    00086100
      ISN 0024          WRITE(6,8030)(HEADER(II,M),II=1,2)                               00086200
      ISN 0025    8030     FORMAT(' ',T20,2A8,'  MODE')                                     00086300
      ISN 0026             WRITE(6,8031)(HEADER(II,M),II=1,2)                              00086400
      ISN 0027    8031     FORMAT('+',T90,2A8,'  MODE')                                     00086500
      ISN 0028             WRITE(6,8045)                                                   00086600
      ISN 0029             WRITE(6,8044)                                                   00086700
      ISN 0030             WRITE(6,8046)                                                   00086800
      ISN 0031             WRITE(6,8042)                                                   00086900
      ISN 0032             WRITE(6,8042)                                                   00087000
      ISN 0033             NLEVEL=NLEV(I,M)                                                00087100
      ISN 0034             IF(NLEVEL.EQ.1)WRITE(6,8032)MYRB                                00087110
      ISN 0036             IF(NLEVEL.NE.1)WRITE(6,8032)MYRB,(MYREG(ILEV,M,I),ILEV=2,NLEVEL)  00087200
C-------
      ISN 0038    8032  FORMAT('+','  YEARS>',T10,5(6X,I4))                              00087300
      ISN 0039          MLEVEL=NLEV(I1,M)                                                00087400
      ISN 0040          IF(MLEVEL.EQ.1)WRITE(6,8033)MYRB                                 00087490
      ISN 0042          IF(MLEVEL.NE.1) WRITE(6,8033)MYRB,(MYREG(ILEV,M,I1),ILEV=2,MLEVEL)  00087500
C-------
      ISN 0044    8033  FORMAT('+',T71,'  YEARS>',T80,5(6X,I4))                          00087600
      ISN 0045          WRITE(6,8042)                                                    00087700
      ISN 0046          WRITE(6,8046)                                                    00087800
      ISN 0047          WRITE(6,8042)                                                    00087900
      ISN 0048          DO 8034 L=1,5                                                    00088000
(001  ISN 0049          IF(IVMASK(I).EQ.0) WRITE(6,8035) HEAD(L,M),(ZERO,ILEV=1,NLEVEL)  00088010
      ISN 0051          IF(IVMASK(I).EQ.1)                                               00088020
                       CWRITE(6,8035)HEAD(L,M),(ALREG(ILEV,L,M,I),ILEV=1,NLEVEL)         00088100
      ISN 0053    8035  FORMAT(' ',T4,A8,T12,5(4X,F6.2))                                 00088200
      ISN 0054          IF(IVMASK(I1).EQ.0) WRITE(6,8036) HEAD(L,M),(ZERO,ILEV=1,MLEVEL)  00088220
      ISN 0056          IF(IVMASK(I1).EQ.1)                                              00088240
                       CWRITE(6,8036)HEAD(L,M),(ALREG(ILEV,L,M,I1),ILEV=1,MLEVEL)        00088300
      ISN 0058    8036  FORMAT('+',T74,A8,T82,5(4X,F6.2))                                00088400
      ISN 0059          WRITE(6,8043)                                                    00088500
      ISN 0060    8034  CONTINUE                                                         00088600
 001)                   C
      ISN 0061          WRITE(6,8042)                                                    00088700
      ISN 0062          WRITE(6,8046)                                                    00088800
      ISN 0063    8029  CONTINUE                                                         00088900
                        C IDLE MODE IS TAKEN CARE OF AS A SPECIAL CASE                   00089000
 002)                   C
      ISN 0064          WRITE(6,8044)                                                    00089100
      ISN 0065          WRITE(6,8037)(HEADER(II,4),II=1,2),(HEADER(II,4),II=1,2)         00089200
```

```
      ISN 0066     8037     FORMAT(' ',T20,2A8,'  MODE',T90,2A8,'  MODE')                                  00089300
      ISN 0067              WRITE(6,8045)                                                                  00089400
      ISN 0068              WRITE(6,8044)                                                                  00089500
      ISN 0069              WRITE(6,8046)                                                                  00089600
      ISN 0070              WRITE(6,8042)                                                                  00089700
      ISN 0071              WRITE(6,8042)                                                                  00089800
      ISN 0072              NLEVEL=NLEV(I,4)                                                               00089810
      ISN 0073              IF(NLEVEL.EQ.1)WRITE(6,8038)MYRB                                               00089820
      ISN 0075              IF(NLEVEL.NE.1)WRITE(6,8038)MYRB,(MYREG(ILEV,3,I),ILEV=2,NLEVEL)               00089900
C-------
      ISN 0077     8038   FORMAT('+',' YEARS>',T10,5(6X,I4))                                             00090000
      ISN 0078            MLEVEL=NLEV(I1,4)                                                              00090010
      ISN 0079            IF(MLEVEL.EQ.1)WRITE(6,8039)MYRB                                               00090020
      ISN 0081            IF(MLEVEL.NE.1)WRITE(6,8039)MYRB,(MYREG(ILEV,3,I1),ILEV=2,MLEVEL)              00090100
C-------
      ISN 0083     8039   FORMAT('+',T71,' YEARS>',T80,5(6X,I4))                                         00090200
      ISN 0084            WRITE(6,8042)                                                                  00090300
      ISN 0085            WRITE(6,8046)                                                                  00090400
      ISN 0086            WRITE(6,8042)                                                                  00090500
      ISN 0087            IF(IVMASK(I).EQ.0) WRITE(6,8040) (ZERO,ILEV=1,NLEVEL)                          00090510
      ISN 0089            IF(IVMASK(I).EQ.1)                                                             00090520
                         CWRITE(6,8040)(ALREG(ILEV,1,4,I),ILEV=1,NLEVEL)                                 00090600
      ISN 0091     8040   FORMAT(' ',T12,5(4X,F6.2))                                                     00090700
      ISN 0092            IF(IVMASK(I1).EQ.0) WRITE(6,8041) (ZERO,ILEV=1,MLEVEL)                         00090720
      ISN 0094            IF(IVMASK(I1).EQ.1)                                                            00090730
                         CWRITE(6,8041)(ALREG(ILEV,1,4,I1),ILEV=1,MLEVEL)                                00090800
      ISN 0096     8041   FORMAT('+',T82,5(4X,F6.2))                                                     00090900
      ISN 0097            WRITE(6,8043)                                                                  00091000
      ISN 0098            WRITE(6,8042)                                                                  00091100
      ISN 0099            WRITE(6,8046)                                                                  00091200
      ISN 0100     8025   CONTINUE                                                                       00091300
 003)                     C
      ISN 0101     8042   FORMAT(' ','|',10X,5('|',9(' ')),'|',8X,'|',10X,5('|',9(' ')),'|')             00091400
      ISN 0102     8043   FORMAT('+','|',10X,5('|',9(' ')),'|',8X,'|',10X,5('|',9(' ')),'|')             00091500
      ISN 0103     8044   FORMAT(' ','|',T63,'|',T72,'|',T133,'|')                                       00091600
      ISN 0104     8045   FORMAT('+','|',T63,'|',T72,'|',T133,'|')                                       00091700
      ISN 0105     8046   FORMAT('+',62('_'),8X,62('_'))                                                 00091800
      ISN 0106            RETURN                                                                         00091900
 004)                     C
      ISN 0107            END                                                                            00092000
```


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 106, PROGRAM SIZE = 3442, SUBPROGRAM NAME =PRINT4

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 98K BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL	STATEMENT	NUMBERS			
I	0010	0010	0010	0040	0040	0040
NAT	0003					
NHT	0003					
NSR	0003					
NVT	0003					
ODBA	0003					
IYRN	0037	0038	0040	0040		
MILE	0003					
MYRB	0003					
MYRC	0038	0040				
NIOD	0003					
NLEV	0003					
NYRN	0003	0037				
VTOT	0003	0040				
ALREG	0003					
ALXPJ	0003					
ALXPK	0003					
ENIDB	0003					
EXPDB	0003					
GVTOT	0003	0040				
ICONT	0004					
IDUMP	0004					
XMASK	0004					
MYREG	0003					
NIGDB	0003					
PEXPJ	0003					
PEXPK	0003					
PIMPJ	0003					
PIMPK	0003					
RNAME	0004	0006				
TOPOP	0003					
ALXPOP	0003					
IPRINT	0004					
ITABLE	0003	0005	0005	0006		
IVMASK	0004					
MYRNET	0003	0038				
POPDEN	0003					
POPEXP	0003					
POPIMP	0003					
POPLTN	0003					
PRINT5	0002					
STOPGF	0003					

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

LABEL	DEFINED	REFERENCES
7999	0007	0006
8000	0011	0010
8002	0017	0016

*****FORTRAN CROSS REFERENCE LISTING*****

LABEL	DEFINED	REFERENCES
8003	0020	0019
8004	0023	0022
8005	0025	0024
8006	0028	0027
8007	0032	0031
8008	0036	0035
8009	0041	0040
8010	0042	0037
8011	0046	0012
8012	0047	0009 0013 0015 0018 0021 0026 0029 0034 0039 0043
8013	0048	0008 0014 0030 0033 0044

/ STRUCTURED SOURCE LISTING /

```
(003  ISN 0002            SUBROUTINE PRINTS                                                    00072300
                          CX PRINTS  LAST UPDATE: 10/20/78 10:02:07.1                          00072310
                          CL PRINTS  LAST UPDATE: ADD FORMAT STATEMENT 7777 FROM PRINT6        00072320
                          C THIS SUBROUTINE PRINTS THE VEHICLE POPULATION                      00072400
                          C    AFTER THE END OF THE TIMESTREAM.                                00072500
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),        00072700
                   B2    2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                             00072710
                   B2    3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                        00072720
                   B2    4PEXPJ(9,9),ALWPJ(9,9),POPLIN(4,9),STOPGF(9,9),                      00072730
                   B2    5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                        00072740
                   B2    6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                             00072750
                   B2    7MYRNET(9),MYRD,NYRN,NVT,NAT,NHT,NSR,N16DB,                          00072760
                   B2    8ITABLE                                                              00072770
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),   00072800
                   B4    2ICONT(12)                                                           00072810
                          C PRINTS THE VEHICLE POPULATION BY TYPE                              00072820
                          C                                                                    00072830
      ISN 0005            ITABLE=ITABLE+1                                                      00073100
      ISN 0006            WRITE(6,7999)ITABLE,RNAME                                            00073300
      ISN 0007      7999  FORMAT('1',T3,'TABLE ',I2,'  VEHICLE POPULATION BY TYPE. ',          00073400
                     *'BUS NUMBERS ARE IN HUNDREDS OF THOUSANDS.',T110,5A4/'0'/'0')           00073500
      ISN 0008            WRITE(6,8013)                                                        00073520
      ISN 0009            WRITE(6,8012)                                                        00073540
      ISN 0010            WRITE(6,8000)(I,I=1,14)                                              00073600
(002)                     C                                                                    00073700
      ISN 0011      8000  FORMAT(' |TYPE>',T13,'|',14(I5,'  |'),T128,'ALL  |'/' ',T127,'TYPE  00073710
                     CS',T133,'|')                                                            00073800
      ISN 0012            WRITE(6,8011)                                                        00073900
      ISN 0013            WRITE(6,8012)                                                        00074000
      ISN 0014            WRITE(6,8013)                                                        00074100
      ISN 0015            WRITE(6,8012)                                                        00074200
      ISN 0016            WRITE(6,8002)                                                        00074300
      ISN 0017      8002  FORMAT(' |CYLINDERS',T13,'|','   8   |   6   |  6&8  |   4   |',   00074400
                     C'   4   |  6&8  |       |       |       |       |       |',             00074500
                     C'       |       |       |',7X,'|')                                     00074600
      ISN 0018            WRITE(6,8012)                                                        00074700
      ISN 0019            WRITE(6,8003)                                                        00074800
      ISN 0020      8003  FORMAT(' |ENGINE',T13,'|',6('  GAS  |'),' DIESEL|',8('       |'))   00074900
      ISN 0021            WRITE(6,8012)                                                        00075000
      ISN 0022            WRITE(6,8004)                                                        00075100
      ISN 0023      8004  FORMAT(' |TRANS=',T13,'|',2(' AUTO- |'),' MAN-  |',' AUTO- |',
```

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                     C'  MAN- |',9('       |'),7X,'|')
   ISN 0024             WRITE(6,6005)                                                          00075200
  *ISN 0025     8005  FORMAT(' |MISSION',T13,'|',2(' MATIC |'),' UAL   |',' MATIC |',         00075300
                     C'  UAL  |',9('  ---- |'),7X,'|')                                          00075400
   ISN 0026             WRITE(6,8012)                                                          00075500
   ISN 0027             WRITE(6,8006)                                                          00075600
   ISN 0028     8006  FORMAT(' |VEH. TYPE>',T13,'|',3('  PC   |'),2(' PC&LT |'),               00075700
                     *' LT TRK| PC&LT |MED TRK|HVY TRK|IC BUS |TR BUS |SCH BUS|',              00075800
                     *'UM MTCY|MD MTCY|',7X,'|')                                                00075900
   ISN 0029             WRITE(6,8012)                                                          00076000
   ISN 0030             WRITE(6,8013)                                                          00076100
   ISN 0031             WRITE(6,8007)                                                          00076200
   ISN 0032     8007  FORMAT(' |',T13,'| ,T85,'|',T109,'|',T133,'|'/' ','| UNIT',             00076300
                     *T13,'|',T50,'MILLIONS',T85,'|',T90,'THOUSANDS X 0.01',T109,             00076400
                     *'|',T116,'MILLIONS',T133,'|'/' |',T13,'|',T85,'|',T109,                  00076500
                     *'|',T133,'|')                                                             00076600
   ISN 0033             WRITE(6,8013)                                                          00076610
   ISN 0034             WRITE(6,8012)                                                          00076700
   ISN 0035             WRITE(6,8008)                                                          00076800
   ISN 0036     8008  FORMAT('+|  YEAR')                                                     | 00076900
   ISN 0037             DO 8010 IYRN=1,NYRN                                                    00077000
(001 ISN 0038           MYRC=MYRNET(IYRN)                                                      00077100
   ISN 0039             WRITE(6,8012)                                                          00077110
   ISN 0040             WRITE(6,8009)MYRC,(VTOT(I,IYRN),I=1,14),GVTOT(IYRN)                    00077120
   ISN 0041     8009  FORMAT (' |',I6,T13,'|',9(-6PF6.2,' |'),3(-5PF6.2,' |'),2(-6PF6.2,     00077300
                     C' |'),-6PF7.2,'|')                                                        00077400
   ISN 0042     8010  CONTINUE                                                                 00077500
 001)                 C                                                                         00077600
   ISN 0043             WRITE(6,8012)                                                          00077610
   ISN 0044             WRITE(6,8013)                                                          00077620
   ISN 0045             RETURN                                                                 00077630
 003)                 C
   ISN 0046     8011  FORMAT('+|',T13,'|',15('       |'))                                    00077700
   ISN 0047     8012  FORMAT(' |',T13,'|',15('       |'))                                    00077800
   ISN 0048     8013  FORMAT('+',132('_'))                                                   00077900
   ISN 0049             END                                                                    00077920

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      48, PROGRAM SIZE =     1866, SUBPROGRAM NAME =PRINTS

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
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REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****FORTRAN CROSS REFERENCE LISTING*****

SYMBOL	INTERNAL STATEMENT NUMBERS															
J	0007	0008	0010	0010	0010	0025	0026	0026	0026	0026	0029	0029	0029	0035	0035	0035
ID	0009	0010														
NAT	0003	0007	0025	0029	0035											
NHT	0003															
NID	0008	0009														
NII	0005	0005	0026	0032												
NSR	0003															
NVT	0003															
POP	0005	0005	0010	0010	0026											
DDBA	0003															
IYRN	0022	0023	0024	0024	0026	0026	0029	0029	0035	0035						
MILE	0003															
MYRB	0003															
MYRC	0023	0032														
NIDD	0003	0008														
NLEV	0003															
NYRN	0003	0022														
RLWP	0024	0032														
VTOT	0003															
ALREG	0003															
ALWPJ	0003	0026	0035													
ALWPK	0003															
ENIDB	0003															
EXPDB	0003															
GVTOT	0003															
ICONT	0004															
IDUMP	0004															
KMASK	0004															
MYREG	0003															
N16DB	0003															
PEXPJ	0003	0029														
PEXPK	0003															
PIMPJ	0003															
PIMPK	0003															
RNAME	0004	0013														
TOPOP	0003	0024														
ALWPOP	0003	0024	0035													
HEADER	0015															
IPRINT	0004															
ITABLE	0003	0006	0006	0013												
IVMASK	0004															
MYRNET	0003	0023														
POPDEN	0003															
POPEXP	0003	0029														
POPIMP	0003															
POPLTN	0003	0010														
PRINT7	0002															
STOPGF	0003	0026														

```
                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
LABEL   DEFINED   REFERENCES
1000    0014      0013
1002    0046      0021  0039
2006    0042      0028  0038
2007    0043      0031  0034  0037
2008    0044      0016  0020
2009    0045      0019
2101    0018      0017
2103    0040      0022
2104    0030      0029
2105    0033      0032
2106    0036      0035
3000    0027      0025
3001    0012      0007
3002    0011      0009

                                  / STRUCTURED SOURCE LISTING /
(005  ISN 0002          SUBROUTINE PRINT7                                                  00110510
                        CX PRINT7  LAST UPDATE:      12/05/78 16:27:52                     00110520
                        C                                                                  00110530
                        CL PRINT7 LAST UPDATE: COPY FORMAT STMNT 1000 FROM PRNT10          00110540
                        C                                                                  00110550
      ISN 0003          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),      00110560
                  B2   2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                            00110570
                  B2   3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                       00110580
                  B2   4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),BTOPGF(9,9),                     00110590
                  B2   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                       00110600
                  B2   6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                            00110610
                  B2   7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N16DB,                         00110620
                  B2   8ITABLE                                                             00110630
      ISN 0004          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),  00110635
                  B4   2ICONT(12)                                                          00110640
      ISN 0005          REAL POP(9)/9*0.0/,NII(9)/9*0.0/                                   00110650
                        C                                                                  00110660
                        C NOW PRINT POPULATION IMPACTED BY AREA TYPE                       00110670
                        C                                                                  00110680
      ISN 0006          ITABLE=ITABLE+1                                                    00110690
                        C                                                                  00110700
      ISN 0007          DO 3001 J=1,NAT                                                    00110710
(004  ISN 0008          NID = NIDD(J)                                                      00110720
      ISN 0009          DO 3002 ID=1,NID                                                   00110730
(002  ISN 0010          POP(J) = POP(J) + POPLTN(ID,J)                                     00110740
      ISN 0011    3002  CONTINUE                                                           00110750
 002)                   C
      ISN 0012    3001  CONTINUE                                                           00110760
                        C                                                                  00110770
 004)                   C
      ISN 0013          WRITE(6,1000) ITABLE,RNAME                                         00110780
      ISN 0014    1000  FORMAT('1'/'0      TABLE ',I2,' AREA SPECIFIC IMPACT METRICS',     00110790
                       *T110,5A4/' ')                                                      00110795
                        C                                                                  00110800
      ISN 0015          CALL HEADER                                                        00110810
      ISN 0016          WRITE(6,2008)                                                      00110820
      ISN 0017          WRITE(6,2101)                                                      00110830
      ISN 0018    2101  FORMAT(' ',T4,'YEAR',T11,'VARIABLE',T30,'PEXP AND LWP IN ',        00110840
                       *'MILLIONS, NII IN PERCENT.')                                       00110842
```

```
      ISN 0019            WRITE(6,2009)                                          00110850
      ISN 0020            WRITE(6,2008)                                          00110860
      ISN 0021            WRITE(6,1002)                                          00110870
      ISN 0022            DO 2103 IYRN=1,NYRN                                    00110880
(003  ISN 0023            MYRC=MYRNET(IYRN)                                      00110890
      ISN 0024            RLWP=ALWPOP(IYRN)/TUPOP(IYRN)                          00110895
                          C                                                      00110900
      ISN 0025            DO 3000 J=1,NAT                                        00110910
                          C                                                      00110920
(001  ISN 0026            NII(J)=ALWPJ(J,IYRN)/POP(J)/STOPGF(J,IYRN)             00110930
                          C                                                      00110940
      ISN 0027      3000  CONTINUE                                               00110950
                          C                                                      00110960
 001)                     C
      ISN 0028            WRITE(6,2006)
      ISN 0029            WRITE(6,2104)(PEXPJ(J,IYRN),J=1,NAT),POPEXP(IYRN)      00110980
      ISN 0030      2104  FORMAT(' ',T11,'EXPOSED>',T23,10(-6PF6.2,3X))          00111000
      ISN 0031            WRITE(6,2007)                                          00111020
      ISN 0032            WRITE(6,2105)MYRC,NII,RLWP                             00111040
      ISN 0033      2105  FORMAT(' ',T4,I4,T11,' NII, % >',T23,10(2PF6.2,3X))   00111060
      ISN 0034            WRITE(6,2007)                                          00111080
      ISN 0035            WRITE(6,2106)(ALWPJ(J,IYRN),J=1,NAT),ALWPOP(IYRN)      00111100
      ISN 0036      2106  FORMAT(' ',T11,'  LWP  >',T23,10(-6PF6.2,3X))         00111120
      ISN 0037            WRITE(6,2007)                                          00111140
      ISN 0038            WRITE(6,2006)                                          00111160
      ISN 0039            WRITE(6,1002)                                          00111180
      ISN 0040      2103  CONTINUE                                               00111200
 003)                     C                                                      00111220
      ISN 0041            RETURN
                          C ZE DO-ALL FORMATS FOLLOW                             00111240
 005)                     C                                                      00111260
      ISN 0042      2006  FORMAT(' ','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')
      ISN 0043      2007  FORMAT('+','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')      00111280
      ISN 0044      2008  FORMAT(' ','|',T9,'|',T21,'|',T102,'|',T113,'|')      00111300
      ISN 0045      2009  FORMAT('+','|',T9,'|',T21,'|',T102,'|',T113,'|')      00111320
      ISN 0046      1002  FORMAT('+',112('_'))                                   00111340
      ISN 0047            END                                                    00111360
                                                                                 00111400
```

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 46, PROGRAM SIZE = 1404, SUBPROGRAM NAME =PRINT7

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ******

118K BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS											
K	0020	0020	0020	0028	0028	0028	0031	0031	0031	0034	0034	0034
NAT	0003											
NHT	0003											
NSR	0003											
NVT	0003											
DUBA	0003											
IYRN	0025	0026	0028	0028	0031	0031	0034	0034				
MILE	0003											
MYRB	0003											
MYRC	0026	0031										
NIDD	0003											
NLEV	0003											
NYRN	0003	0025										
VTOT	0003											
ALREG	0003											
ALWPJ	0003											
ALWPK	0003	0034										
ENIDB	0003											
EXPDB	0003											
GVTOT	0003											
ICONT	0004											
IDUMP	0004											
KMASK	0004											
MYREG	0003											
N16DB	0003											
PEXPJ	0003											
PEXPK	0003	0028										
PIMPJ	0003											
PIMPK	0003	0031										
RNAME	0004	0006										
TOPOP	0003											
ALWPOP	0003	0034										
IPRINT	0004											
ITABLE	0003	0005	0005	0006								
IVMASK	0004											
MYRNET	0003	0026										
POPDEN	0003											
POPEXP	0003	0028										
POPIMP	0003	0031										
POPLTN	0003											
PRINT8	0002											
STOPGF	0003											

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
3001	0039	0025
8100	0007	0006
8103	0011	0010

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                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
LABEL   DEFINED   REFERENCES
8104    0015      0014
8105    0019      0018
8106    0021      0020
8107    0029      0028
8108    0032      0031
8109    0035      0034
8110    0042      0009  0013
8111    0043      0012
8112    0040      0017  0023  0027  0037
8113    0041      0022  0030  0033  0036
8114    0044      0008  0024  0038
8115    0045      0016

                                  / STRUCTURED SOURCE LISTING /
(003  ISN 0002          SUBROUTINE PRINT8                                                  00092100
                        CX PRINT8  LAST UPDATE:      10/19/78 15:32:23                     00092110
      ISN 0003          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),      00092300
                  B2   2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                            00092310
                  B2   3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                       00092320
                  B2   4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STOPGF(9,9),                     00092330
                  B2   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                       00092340
                  B2   6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                            00092350
                  B2   7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N16DB,                         00092360
                  B2   8ITABLE                                                             00092370
      ISN 0004          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),  00093000
                  B4   2ICONT(12)                                                          00093100
                        C NOW WE PRINT BY ROADWAY TYPE.                                    00097600
      ISN 0005          ITABLE=ITABLE+1                                                    00097700
      ISN 0006          WRITE(6,8100) ITABLE,RNAME                                         00097800
      ISN 0007    8100  FORMAT('1'/'0      TABLE ',I2,' IMPACT METRICS BY ROADWAY TYPE, ',  00097900
                       *'IN MILLIONS',T110,5A4/'0'/)                                       00098000
      ISN 0008          WRITE(6,8114)                                                      00098300
      ISN 0009          WRITE(6,8110)                                                      00098400
      ISN 0010          WRITE(6,8103)                                                      00098500
      ISN 0011    8103  FORMAT(' ',T50,'ROADWAY TYPE, K',T97,'TOTAL')                      00098600
      ISN 0012          WRITE(6,8111)                                                      00098700
      ISN 0013          WRITE(6,8110)                                                      00098800
      ISN 0014          WRITE(6,8104)                                                      00098900
      ISN 0015    8104  FORMAT('+',T98,'ALL')                                              00099000
      ISN 0016          WRITE(6,8115)                                                      00099100
      ISN 0017          WRITE(6,8112)                                                      00099200
      ISN 0018          WRITE(6,8105)                                                      00099300
      ISN 0019    8105  FORMAT('+',T4,'YEAR',T11,'VARIABLE',T97,'TYPES')                   00099400
      ISN 0020          WRITE(6,8106)(K,K=1,6)                                             00099500
(002)                   C
      ISN 0021    8106  FORMAT(T27,6(I1,11X))                                              00099600
      ISN 0022          WRITE(6,8113)                                                      00099700
      ISN 0023          WRITE(6,8112)                                                      00099800
      ISN 0024          WRITE(6,8114)                                                      00099900
      ISN 0025          DO 3001 IYRN=1,NYRN                                                00100100
(001  ISN 0026          MYRC=MYRNET(IYRN)                                                  00100200
      ISN 0027          WRITE(6,8112)                                                      00100300
      ISN 0028          WRITE(6,8107)(PEXPK(K,IYRN),K=1,6),POPEXP(IYRN)                    00100400
      ISN 0029    8107  FORMAT(' ',T11,'EXPOSED>',T22,7(-6PF10.2,2X))                      00100500
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     ISN 0030          WRITE(6,8113)                                                  00100600
     ISN 0031          WRITE(6,8108)MYRC,(PIMPK(K,IYRN),K=1,6),POPIMP(IYRN)           00100700
     ISN 0032    8108  FORMAT(' ',I4,I4,T11,'IMPACTED>',T22,7(-6PF10.2,2X))           00100800
     ISN 0033          WRITE(6,8113)                                                  00100900
     ISN 0034          WRITE(6,8109)(ALWPK(K,IYRN),K=1,6),ALWPOP(IYRN)                00101000
     ISN 0035    8109  FORMAT(' ',T11,'  LWP  >',T22,7(-6PF10.2,2X))                  00101100
     ISN 0036          WRITE(6,8113)                                                  00101200
     ISN 0037          WRITE(6,8112)                                                  00101300
     ISN 0038          WRITE(6,8114)                                                  00101400
     ISN 0039    3001  CONTINUE                                                       00101700
001)                   C
     ISN 0040    8112  FORMAT(' ','|',T9,'|',T21,'|',7(11X,'|'))                      00101800
     ISN 0041    8113  FORMAT('+','|',T9,'|',T21,'|',7(11X,'|'))                      00101900
     ISN 0042    8110  FORMAT(' ','|',T9,'|',T21,'|',T93,'|',T105,'|')                00102000
     ISN 0043    8111  FORMAT('+','|',T9,'|',T21,'|',T93,'|',T105,'|')                00102100
     ISN 0044    8114  FORMAT('+',104('_'))                                           00102200
     ISN 0045    8115  FORMAT('+',T21,72('_'))                                        00102300
     ISN 0046          RETURN                                                         00102400
003)                   C
     ISN 0047          END                                                            00102500


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      46, PROGRAM SIZE =     1364, SUBPROGRAM NAME =PRINT8

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS										
I	0030	0030	0030	0033	0033	0033						
IDB	0024	0024	0024	0052	0053	0055	0058	0058	0058	0060	0060	0060
NAT	0003											
NHT	0003											
NSR	0003											
NVT	0003											
SUM	0051	0053	0053	0055	0055	0058	0060					
DDBA	0003	0030	0033									
IYRN	0049	0050	0053	0055	0058	0060						
MILE	0003											
MYRB	0003											
MYRC	0050	0058	0060									
NIDD	0003											
NLEV	0003											
NYRN	0003	0049										
VTOT	0003											
ALREG	0003											
ALMPJ	0003											
ALMPK	0003											
ENIDB	0003	0053	0058									
EXPDB	0003	0055	0060									
GVTOT	0003											
ICASE	0002	0006	0008	0014	0016	0039	0041	0053	0055	0058	0060	
ICONT	0004											
IDUMP	0004											
KMASK	0004											
MYREG	0003											
N1608	0003											
PEXPJ	0003											
PEXPK	0003											
PIMPJ	0003											
PIMPK	0003											
RNAME	0004	0006	0008									
TOPOP	0003											
ALMPOP	0003											
IPRINT	0004											
ITABLE	0003	0005	0005	0006	0008							
IVMASK	0004											
MYRNET	0003	0050										
POPDEN	0003											
POPEXP	0003											
POPIMP	0003											
POPLTN	0003											
PRINT9	0002											
STOPGF	0003											

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES					
1001	0018	0014					
1002	0025	0024					
1003	0031	0030					
1004	0034	0033					
1005	0043	0039					
1006	0062	0058	0060				
1101	0019	0016					
1102	0068	0013	0021	0038	0046		
1103	0069	0020	0045				
1104	0070	0023	0027	0029	0056	0048	0064
1105	0071	0026	0032	0035	0063		
1106	0072	0012	0028	0037	0047	0066	
1107	0073	0022					
1990	0057	0052					
1999	0065	0049					
2000	0010	0006					
2001	0011	0008					
2005	0044	0041					

/ STRUCTURED SOURCE LISTING /

```
(004  ISN 0002            SUBROUTINE PRINT9(ICASE)                                          00114450
                          CX PRINT9  LAST UPDATE:      10/19/78 15:57:58                    00114460
                          C                                                                 00114470
                          CL PRINT9 LAST CHANGE:  NAME CHANGED FROM PRINT6 TO PRINT9        00114480
                          C                                                                 00114490
                          C PRINTS IMPACT AND EXPOSURE IN 5 DBA INTERVALS                   00114500
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),     00114550
                     B2   2POPEXP(9),POPIMP(9),ALMPOP(9),TOPOP(9),                         00114560
                     B2   3PIMPK(6,9),PEXPK(6,9),ALMPK(6,9),PIMPJ(9,9),                   00114570
                     B2   4PEXPJ(9,9),ALMPJ(9,9),POPLTN(4,9),STOPGF(9,9),                 00114580
                     B2   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                   00114590
                     B2   6MILES(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                       00114600
                     B2   7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N16DB,                     00114610
                     B2   8ITABLE                                                         00114620
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),00114630
                     B4   2ICONT(12)                                                      00114640
                          C FIRST PRINTS THE IMPACT BY SDB                                00114750
      ISN 0005            ITABLE=ITABLE+1                                                 00114800
      ISN 0006            IF(ICASE.EQ.1)WRITE(6,2000) ITABLE,RNAME                        00114950
      ISN 0008            IF(ICASE.EQ.2)WRITE(6,2001) ITABLE,RNAME                        00115000
      ISN 0010      2000  FORMAT('1'/'0     TABLE ',I2,'  LEVEL-WEIGHTED POPULATION ',    00115020
                         *'IN DB BANDS ABOVE 55',T110,5A4/'0'/'0')                        00115040
      ISN 0011      2001  FORMAT('1'/'0     TABLE ',I2,'  POPULATION EXPOSED IN DB BANDS ',00115060
                         *'ABOVE 55',T110,5A4/'0'/'0')                                    00115060
      ISN 0012            WRITE(6,1106)                                                   00115150
      ISN 0013            WRITE(6,1102)                                                   00115200
      ISN 0014            IF(ICASE.EQ.1)WRITE(6,1001)                                     00115250
      ISN 0016            IF(ICASE.EQ.2)WRITE(6,1101)                                     00115300
      ISN 0018      1001  FORMAT(' ',T5,'LWP',T27,'DBA RANGE, IDB')                       00115350
      ISN 0019      1101  FORMAT(' ',T4,'PEXP',T27,'DBA RANGE, IDB')                      00115400
      ISN 0020            WRITE(6,1103)                                                   00115450
      ISN 0021            WRITE(6,1102)                                                   00115500
      ISN 0022            WRITE(6,1107)                                                   00115550
      ISN 0025            WRITE(6,1104)                                                   00115600
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      ISN 0024          WRITE(6,1002)(IDB,IDB=2,13)                                          00115650
(003)                   C
      ISN 0025    1002  FORMAT(' ',T10,12(2X,I2,4X),T106,'TOTAL')                           00115700
      ISN 0026          WRITE(6,1105)                                                        00115750
      ISN 0027          WRITE(6,1104)                                                        00115800
      ISN 0028          WRITE(6,1106)                                                        00115850
      ISN 0029          WRITE(6,1104)                                                        00115900
      ISN 0030          WRITE(6,1003)(DDBA(I),I=1,12)                                        00115950
      ISN 0031    1003     FORMAT(' ',T4,'DBA',T10,12(F4.0,'_',3X))                          00116000
      ISN 0032             WRITE(6,1105)                                                     00116050
      ISN 0033             WRITE(6,1004)(DDBA(I),I=2,13)                                     00116100
      ISN 0034    1004     FORMAT(' ',T3,'RANGE',T10,12(1X,F5.0,2X))                         00116150
      ISN 0035             WRITE(6,1105)                                                     00116200
      ISN 0036             WRITE(6,1104)                                                     00116250
      ISN 0037             WRITE(6,1106)                                                     00116300
      ISN 0038             WRITE(6,1102)                                                     00116350
      ISN 0039             IF(ICASE.EQ.2)WRITE(6,1005)                                       00116400
      ISN 0041             IF(ICASE.EQ.1)WRITE(6,2005)                                       00116450
      ISN 0043    1005     FORMAT(' ',T4,'YEAR',T47,'MILLIONS OF PEOPLE')                    00116500
      ISN 0044    2005     FORMAT(' ',T4,'YEAR',T47,'MILLIONS OF LEVEL-WEIGHTED PEOPLE')     00116550
      ISN 0045             WRITE(6,1103)                                                     00116600
      ISN 0046             WRITE(6,1102)                                                     00116650
      ISN 0047             WRITE(6,1106)                                                     00116700
      ISN 0048             WRITE(6,1104)                                                     00116750
                           C                                                                 00116800
      ISN 0049             DO 1999 IYRN=1,NYRN                                               00116850
(002  ISN 0050          MYRC=MYRNET(IYRN)                                                    00116900
      ISN 0051          SUM= 0.0E0                                                           00116950
      ISN 0052          DO 1990 IDB=2,13                                                     00117000
(001  ISN 0053          IF(ICASE.EQ.1)SUM=SUM+ENIDB(IDB,IYRN)                                00117020
      ISN 0055          IF(ICASE.EQ.2)SUM=SUM+EXPDB(IDB,IYRN)                                00117030
C-------
      ISN 0057    1990  CONTINUE                                                             00117100
                        C                                                                    00117105
 001)                   C
      ISN 0058          IF(ICASE.EQ.1)WRITE(6,1006)MYRC,(ENIDB(IDB,IYRN),IDB=2,13),SUM       00117110
      ISN 0060          IF(ICASE.EQ.2)WRITE(6,1006)MYRC,(EXPDB(IDB,IYRN),IDB=2,13),SUM       00117130
      ISN 0062    1006  FORMAT(' ',T4,I4,T10,12(-6PF6.2,2X),-6PF7.2)                         00117200
      ISN 0063          WRITE(6,1105)                                                        00117250
      ISN 0064          WRITE(6,1104)                                                        00117260
      ISN 0065    1999  CONTINUE                                                             00117300
 002)                   C
      ISN 0066          WRITE(6,1106)                                                        00117400
      ISN 0067          RETURN                                                               00117450
                        C ZE  DO ALL FORMATS                                                 00117500
 004)                   C
      ISN 0068    1102  FORMAT(' ','|',T9,'|',T105,'|',T114,'|')                             00117550
      ISN 0069    1103  FORMAT('+','|',T9,'|',T105,'|',T114,'|')                             00117600
      ISN 0070    1104  FORMAT(' ','|',T9,'|',12(7X,'|'),8X,'|')                             00117650
      ISN 0071    1105  FORMAT('+','|',T9,'|',12(7X,'|'),8X,'|')                             00117700
      ISN 0072    1106  FORMAT('+',113('_'))                                                 00117750
      ISN 0073    1107  FORMAT('+',T9,97('_'))                                               00117800
      ISN 0074          END                                                                  00117900

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTI[illegible] IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOM[illegible]FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
```

```
LEVEL [illegible]2  (SEPT 76)        PRINT9        OS/360  FORTRAN H  [illegible]TENDED        DATE 80,273/19.14.02        PAGE  [illegible]
*STATISTICS*     SOURCE STATEMENTS =      73, PROGRAM SIZE =      2018, SUBPROGRAM NAME =PRINT9
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                    114K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS			
J	0019	0019	0019	
NAT	0003			
NHT	0003			
NSR	0003			
NVT	0003			
DOBA	0003			
IYRN	0016	0017	0019	
MILE	0003			
MYRB	0003			
MYRC	0017	0019		
NIOD	0003			
NLEV	0003			
NYRN	0003	0016		
VTOT	0003			
ALREG	0003			
ALWPJ	0003			
ALWPK	0003			
ENIDB	0003			
EXPDB	0003			
GVTOT	0003			
ICONT	0004			
IDUMP	0004			
KMASK	0004			
MYREG	0003			
N16DB	0003			
PEXPJ	0003			
PEXPK	0003			
PIMPJ	0003			
PIMPK	0003			
RNAME	0004	0006		
TOPUP	0003			
ALWPUP	0003			
HEADER	0008			
IPRINT	0004			
ITABLE	0003	0005	0005	0006
IVMASK	0004			
MYRNET	0003	0017		
POPDEN	0003			
POPEXP	0003			
POPIMP	0003			
POPLTN	0003			
PRNT10	0002			
STOPGF	0003	0019		

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1000	0007	0006
1001	0011	0010

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1002	0015	0014 0025
1003	0022	0016
1004	0020	0019
2006	0027	0018 0024
2007	0028	0021 0023
2008	0029	0009 0013
2009	0030	0012

/ STRUCTURED SOURCE LISTING /

```
(002  ISN 0002            SUBROUTINE PRNT10                                                    00108750
                          CX PRNT10  LAST UPDATE:      10/19/78 15:42:43                       00108760
                          CL  LAST CHANGE: PRNT10 DERIVED FROM OLD PRINT5                      00108770
                          C                                                                    00108780
                          C THIS SUBROUTINE PRINTS OUT DATA BY AREA TYPE, J.                   00108800
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),        00108850
                    B2    2POPEXP(9),POPIMP(9),ALRPOP(9),TOPOP(9),                             00108860
                    B2    3PIMPK(6,9),PEXPK(6,9),ALRPK(6,9),PIMPJ(9,9),                        00108870
                    B2    4PEXPJ(9,9),ALRPJ(9,9),POPLTN(4,9),STOPGF(9,9),                      00108880
                    B2    5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                        00108890
                    B2    6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                             00108900
                    B2    7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NSR,N16DB,                          00108910
                    B2    8ITABLE                                                              00108920
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),   00108930
                    B4    2ICONT(12)                                                           00108940
                          C PRINT POPULATION GROWTH FACTOR                                     00109200
      ISN 0005            ITABLE=ITABLE+1                                                      00109250
      ISN 0006            WRITE(6,1000) ITABLE,RNAME                                           00109300
      ISN 0007      1000  FORMAT('1'/'0     TABLE ',I2,'  POPULATION GROWTH FACTOR FOR ',      00109400
                    *'EACH NET YEAR',T110,5A4/'0'/'0')                                         00109500
      ISN 0008            CALL HEADER                                                          00109550
      ISN 0009            WRITE(6,2008)                                                        00109600
      ISN 0010            WRITE(6,1001)                                                        00109650
      ISN 0011      1001  FORMAT(' ',T4,'YEAR',T11,'VARIABLE',T48,'POP(YEAR)/POP(BASELINE)   00109700
                    C')                                                                        00109750
      ISN 0012            WRITE(6,2009)                                                        00109800
      ISN 0013            WRITE(6,2006)                                                        00109850
      ISN 0014            WRITE(6,1002)                                                        00109900
      ISN 0015      1002  FORMAT('+',112('_'))                                                 00109950
      ISN 0016            DO 1003 IYRN=1,NYRN                                                  00110050
(001  ISN 0017            MYRC=MYRNET(IYRN)                                                    00110060
      ISN 0018            WRITE(6,2006)                                                        00110100
      ISN 0019            WRITE(6,1004)MYRC,(STOPGF(J,IYRN),J=1,9)                             00110150
      ISN 0020      1004  FORMAT(' ',T4,I4,T23,9(F6.2,3X))                                     00110200
      ISN 0021            WRITE(6,2007)                                                        00110250
      ISN 0022      1003  CONTINUE                                                           00110400
 001)                     C                                                                    00110410
      ISN 0023            WRITE(6,2007)                                                        00110420
      ISN 0024            WRITE(6,2006)                                                        00110430
      ISN 0025            WRITE(6,1002)                                                        00110440
      ISN 0026            RETURN                                                               00110450
                          C ZE DO ALL FORMATS                                                  00110460
 002)                     C                                                                    00110470
      ISN 0027      2006  FORMAT(' ','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')
      ISN 0028      2007  FORMAT('+','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')
```

```
      ISN 0029     2008  FORMAT(' ','|',19,'|',121,'|',1102,'|',1113,'|')          00110480
      ISN 0030     2009  FORMAT('+','|',19,'|',121,'|',1102,'|',1113,'|')          00110490
      ISN 0031           END                                                       00110500
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LIVECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      31, PROGRAM SIZE =      946, SUBPROGRAM NAME =PRNT10

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                          122K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS											
A	0003											
I	0017	0018	0018	0019								
A1	0003											
A2	0003											
B1	0003											
B2	0003											
F1	0003											
I1	0003											
IT	0003											
ADT	0003											
ALC	0003											
ALO	0003											
CZD	0003											
DBK	0003											
MYR	0010	0011	0011	0011	0013	0013	0013	0015	0022	0024	0024	0024
NAT	0004											
NHT	0004											
NSR	0004											
NVT	0004											
PGF	0003											
SUM	0016	0019	0019	0022								
VAF	0003											
VBD	0018											
VGF	0003											
AREA	0003											
CON0	0003											
CON2	0003											
DDBA	0004											
IVAF	0003											
IVBD	0003											
IVGF	0003											
JPGF	0003											
LANE	0003											
LIFE	0003											
MILE	0004											
MYRB	0004											
MYRE	0003											
NIOD	0004											
NLEV	0004											
NUMS	0007	0007	0013									
NYRN	0004											
PGF0	0003											
REMO	0003											
VBDS	0006	0018	0019	0022								
VINT	0003											
VPOP	0003											
VTOT	0004											
XINC	0003											
YINC	0003											

*****FORTRAN CROSS REFERENCE LISTING*****

SYMBOL	INTERNAL STATEMENT NUMBERS
ALNEG	0004
ALNPJ	0004
ALNPK	0004
BVPOP	0003
ENIDB	0004
EXPOB	0004
GVTOT	0004
ICONT	0005
IDUMP	0005
ITABS	0009 0011 0011 0013 0013
JMYLE	0003
KMASK	0005
MOLYR	0003 0015
MYREF	0003
MYNEG	0004
N16DB	0004
PEXPJ	0004
PEXPK	0004
PIMPJ	0004
PIMPK	0004
RNAME	0005 0013
TOPOP	0004
VBD74	0003
VBD77	0003
VBD85	0003
VBD90	0003
WIDTH	0003
XKINK	0003
ALWPOP	0004
FPAREA	0003
FPROAD	0003
IEQAGE	0003
IPRINT	0005
ITABLE	0004 0008 0008 0013
IVMASK	0005
MYNREF	0004
POPDEN	0004
POPEXP	0004
POPIMP	0004
POPLTN	0004
PRNT11	0002
STOPGF	0004

*****FORTRAN CROSS REFERENCE LISTING*****

LABEL	DEFINED	REFERENCES
1000	0026	0010
1001	0020	0017
7000	0028	0013
7001	0029	0024
7002	0030	0022
7003	0031	0021
7004	0032	0023

/ STRUCTURED SOURCE LISTING /

```
(003  ISN 0002            SUBROUTINE PRNT11                                                    00123000
                          C                                                                    00123100
                          CS PRNT11: CREATED            11/02/78 13:37:53                      00123200
                          C                                                                    00123300
                          CS PRNT11 LAST UPDATED:       11/07/78 17:00:55                      00123400
                          C                                                                    00123500
                          C PRINTS THE STORED VEHICLE BREAKDOWN FUNCTION FOR EACH YEAR FROM    00123600
                          C                          1957 TO 2013 IN TWO TABLES                00123700
      ISN 0003            COMMON /BIG001/ VAP(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),      00123800
                   B1    2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                       00123900
                   B1    3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                       00124000
                   B1    4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                            00124100
                   B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                        00124200
                   B1    6XKINK,A1,A2,B1,B2,ALO,CONV,COM2,IVAF(14),                           00124300
                   B1    7MYREF(6),IVBD(14),LIFE(8),IEQAGE(6),JMYLE(9,4),                     00124400
                   B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,II                     00124500
      ISN 0004            COMMON /BIG002/ ALREG(5,8,4,14),GVTOT(9),VTOT(14,9),DDBA(16),        00124600
                   B2    2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                             00124700
                   B2    3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                        00124800
                   B2    4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),BTOPGF(9,9),                      00124900
                   B2    5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                        00125000
                   B2    6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                             00125100
                   B2    7MYRNET(9),MYRB,NYRN,NVT,NAT,NHT,NBR,N16DB,                          00125200
                   B2    8ITABLE                                                              00125210
      ISN 0005            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),   00125220
                   B4    2ICONT(12)                                                           00125230
                          C                                                                    00125310
      ISN 0006            DIMENSION VBDS(7)                                                    00125320
                          C                                                                    00125400
      ISN 0007            INTEGER NUMS(7) /1,2,3,4,5,6,7/                                      00125500
                          C                                                                    00125600
      ISN 0008            ITABLE=ITABLE+1                                                      00125700
      ISN 0009            ITABS=0                                                              00125800
                          C                                                                    00125900
                          C SET UP COMPREHENSIVE DO LOOP                                       00126000
                          C                                                                    00126100
      ISN 0010            DO 1000 MYR = 1957,2013                                              00126200
                          C                                                                    00126300
(002  ISN 0011            IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)                        00126400
                         *ITABS = ITABS + 1                                                    00126410
      ISN 0013            IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)                        00126500
                         *WRITE(6,7000) ITABLE,ITABS,ITABS,RNAME,NUMS                          00126510
                          C                                                                    00126600
      ISN 0015            MODYR = MYR                                                          00126610
      ISN 0016            SUM = 0.0                                                            00126614
                          C                                                                    00126620
      ISN 0017            DO 1001 I = 1,7                                                      00126630
                          C                                                                    00126640
(001  ISN 0018            VBDS(I) = VBD(I)                                                     00126650
      ISN 0019            SUM = SUM + VBDS(I)                                                  00126655
                          C                                                                    00126660
      ISN 0020     1001   CONTINUE                                                            00126670
                          C                                                                    00126680
 001)                     C
      ISN 0021            WRITE(6,7003)                                                        00126700
      ISN 0022            WRITE(6,7002) MYR,VBDS,SUM                                           00126800
      ISN 0023            WRITE(6,7004)                                                        00126900
```

```
                        C                                                                  00127000
     ISN 0024           IF(MYR.EQ.1975.OR.MYR.EQ.1995.OR.MYR.EQ.2013)                      00127100
                       *WRITE(6,7001)                                                      00127110
                        C                                                                  00127200
     ISN 0026     1000  CONTINUE                                                          00127300
                        C                                                                  00127400
002)                    C
     ISN 0027           RETURN                                                            00127500
                        C                                                                  00127600
                        C  FORMAT STATEMENTS                                               00127700
                        C                                                                  00127800
003)                    C
     ISN 0028     7000  FORMAT('1'/'0   TABLE ',I2,'.',I2,'    LIGHT VEHICLE BREAKDOWN',   00127900
                       *' RATIOS FOR 1957-2013,(TABLE ',I2,' )',T110,5A4/'0'/              00128000
                  L0   *' ',91('_')/' ','|',T20,'|',T83,'|',T92,'|'/                       00128010
                  L1   *' |',T20,'|',T71,'****PRNT11',T83,'|',T92,'|'/                     00128100
                  L2   *' ',T8,'VEHICLE'/'+|',T20,'|',T83,'|',T92,'|'/'+',T20,64('_')/      00128200
                  L3   *' ',T8,'TYPE  >',T24,7(I2,7X)/'+|',T20,9('|',8(' '))/              00128300
                  L3-4 *'+',T20,64('_')/' |',T20,'|',T83,'|',T92,'|'/                      00128400
                  L4   *' ',T8,'MODEL YEAR',T40,'VEHICLE BREAKDOWN,',                      00128410
                  L5   *' VBD(I).',T85,'SUM'/'+|',T20,'|',T83,'|',T92,'|'/                 00128500
                  L6   *' |              V',T20,'|',T83,'|',T92,'|'/'+',91('_'))            00128600
     ISN 0029     7001  FORMAT(' |',T20,'|',8(8(' '),'|')/'+',91('_'))                     00128800
     ISN 0030     7002  FORMAT(' ',T15,I4,T21,8(F7.4,2X))                                  00128900
     ISN 0031     7003  FORMAT(' |',T20,'|',8(8(' '),'|'))                                 00129000
     ISN 0032     7004  FORMAT('+|',T20,'|',8(8(' '),'|'))                                 00129100
     ISN 0033           END                                                               00129200
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      32, PROGRAM SIZE =     1310, SUBPROGRAM NAME =PRNT11

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  118K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS													
IPR	0002	0005	0007	0052	0059									
NAT	0003													
NHT	0003													
NSR	0003													
NVT	0003													
ODBA	0003													
OLWP	0045	0046	0049	0054										
IYRN	0043	0044	0045	0047	0047	0048	0048	0049	0049	0049	0054	0054	0054	0054
MILE	0003													
MYRB	0003													
MYRC	0044	0049	0054											
NIDD	0003													
NLEV	0003													
NYRN	0003	0043												
REXP	0047	0049	0054											
RLWP	0048	0049	0054											
RRCI	0046	0049	0054											
VTOT	0003													
ALREG	0003													
ALWPJ	0003													
ALWPK	0003													
ENIDB	0003													
EXPDB	0003													
GVIOT	0003													
ICONT	0004													
IDUMP	0004													
IPLOT	0002	0005	0040	0049										
KMASK	0004													
MYREG	0003													
N16DB	0003													
PEXPJ	0003													
PEXPK	0003													
PIMPJ	0003													
PIMPK	0003													
RNAME	0004	0010	0040											
TOPOP	0003	0047	0048	0049	0054									
ALWPOP	0003	0045	0045	0046	0048	0049	0054							
IPRINT	0004													
ITABLE	0003	0009	0009	0010										
IVMASK	0004													
MYNNET	0003	0044												
POPDEN	0003													
POPEXP	0003	0047	0049	0054										
POPIMP	0003	0054												
POPLTN	0003													
PRINT6	0002													
STOPGF	0003													

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
98	0040	0007
99	0042	0040
100	0051	0049
7777	0011	0010
8021	0065	0012 0030 0036 0062
8022	0015	0014
8023	0018	0017
8024	0021	0020
8025	0024	0023
8026	0033	0032
8027	0038	0037
8028	0058	0043 0052
8029	0055	0054
8030	0063	0013 0029 0031 0035 0057 0061
8031	0064	0016 0019 0022 0025 0028 0034 0039 0056
8032	0027	0026

/ STRUCTURED SOURCE LISTING /

```
(002  ISN 0002            SUBROUTINE PRINT6(IPLOT,IPR)
                          CX PRINT6  LAST UPDATE
                          C
                          C     THIS SUBROUTINE PRINTS THE PRIMARY IMPACT METRICS
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),
                    B2    2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),
                    B2    3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),
                    B2    4PEXPJ(9,9),ALWPJ(9,9),POPLIN(4,9),BTOPGF(9,9),
                    B2    5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),
                    B2    6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),
                    B2    7MYRNET(9),MYRB,NYRN,NVT,NAT,NMT,NSR,N16DB,
                    B2    8ITABLE
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),
                    B4    2ICONT(12)
                          C
                          C THE FOLLOWING BLOCK PRINTS THE YEARLY IMPACT
                          C
      ISN 0005            IF (IPLOT.EQ.0 .AND. IPR.EQ.0) RETURN
      ISN 0007            IF (IPR.EQ.0) GOTO 98
      ISN 0009               ITABLE=ITABLE+1
      ISN 0010               WRITE(6,7777)ITABLE,RNAME
      ISN 0011      7777     FORMAT('1'/'      TABLE ',I2,'  NOISE IMPACT FOR EACH YEAR IN ',
                     A       'THE TIMESTREAM',T110,5A4/'0'/'0')
      ISN 0012               WRITE(6,8021)
      ISN 0013               WRITE(6,8030)
      ISN 0014               WRITE(6,8022)
      ISN 0015      8022     FORMAT(' ',T65,'LEVEL=',T78,'NOISE',T103,'RELATIVE')
      ISN 0016               WRITE(6,8031)
      ISN 0017               WRITE(6,8023)
      ISN 0018      8023     FORMAT(' ',I9,'  TOTAL US',T24,'POPULATION',T38,'RELATIVE',T50,
                     C       'POPULATION',T64,'WEIGHTED',T77,' IMPACT',T89,'CHANGE IN',T102,
                     C       'CHANGE IN')
      ISN 0019               WRITE(6,8031)
      ISN 0020               WRITE(6,8024)
      ISN 0021      8024     FORMAT(' ',T11,'POPULATION',T25,'EXPOSED',T38,'EXPOSURE',T51,
                     C       'IMPACTED',T65,'POPULATION',T78,'INDEX',T92,'LWP',T104,'IN LWP')
      0022                   WRITE(6,8031)
```

```
      ISN 0023                WRITE(6,8025)
      ISN 0024      8025      FORMAT(' ',T26,'>55D6,',T79,'NII=',T91,'DLWP=',T105,'RCI=')
      ISN 0025                WRITE(6,8031)
      ISN 0026                WRITE(6,8032)
      ISN 0027      8032      FORMAT(' ',T27,'PEXP',T37,'PEXP/TOPOP',T52,'POPIMP',T67,'LWP',
     C                       T77,'LWP/TOPOP',T90,'LWPO-LWP',T103,'DLWP/LWP0')
      ISN 0028                WRITE(6,8031)
      ISN 0029                WRITE(6,8030)
      ISN 0030                WRITE(6,8021)
      ISN 0031                WRITE(6,8030)
      ISN 0032                WRITE(6,8026)
      ISN 0033      8026      FORMAT(' ',T4,'UNIT>',T12,'MILLIONS',T25,'MILLIONS',T38,'PERCENT',
     C                       T51,'MILLIONS',T63,'MILLIONS',T77,'PERCENT',T90,'MILLIONS',T103,
     C                       'PERCENT')
      ISN 0034                WRITE(6,8031)
      ISN 0035                WRITE(6,8030)
      ISN 0036                WRITE(6,8021)
      ISN 0037                WRITE(6,8027)
      ISN 0038      8027      FORMAT(' ',T4,'YEAR')
      ISN 0039                WRITE(6,8031)
      ISN 0040       98       IF (IPLOT.EQ.1) WRITE(1,99) RNAME
      ISN 0042       99       FORMAT(1X,5A4)
      ISN 0043                DO 8028 IYRN=1,NYRN
(001  ISN 0044                MYRC=MYRNET(IYRN)
                              C
                              C COMPUTE DERIVED DATA
                              C
      ISN 0045                DLWP=ALWPOP(1)-ALWPOP(IYRN)
      ISN 0046                RRCI=DLWP/ALWPOP(1)
      ISN 0047                REXP=POPEXP(IYRN)/TOPOP(IYRN)
      ISN 0048                RLWP=ALWPOP(IYRN)/TOPOP(IYRN)
                              C
      ISN 0049                IF(IPLOT.EQ.1) WRITE(1,100)MYRC,TOPOP(IYRN),POPEXP(IYRN),REXP,
     CALWPOP(IYRN),RLWP,DLWP,RRCI
      ISN 0051      100       FORMAT(' ',I4,'.',2(-6PF7.2),2PF7.2,-6PF7.2,2PF7.2,-6PF7.2,
     C2PF7.2)
      ISN 0052                IF (IPR.EQ.0) GOTO 8028
      ISN 0054                   WRITE(6,8029)MYRC,TOPOP(IYRN),POPEXP(IYRN),REXP,POPIMP(IYRN),
     C                       ALWPOP(IYRN),RLWP,DLWP,RRCI
      ISN 0055      8029      FORMAT(' ',T3,I6,2X,2(-6PF10.2,3X),2PF10.2,3X,2(-6PF10.2,3X),
     C                       2PF10.2,3X,-6PF10.2,3X,2PF10.2)
      ISN 0056                WRITE(6,8031)
      ISN 0057                WRITE(6,8030)
C-------
      ISN 0058      8028      CONTINUE
 001)                         C
      ISN 0059                IF (IPR.EQ.0) RETURN
      ISN 0061                WRITE(6,8030)
      ISN 0062                WRITE(6,8021)
                              C
                              C ZE DO ALL FORMATS
                              C
      ISN 0063      8030      FORMAT(' |      |',8(12X,'|'))
      ISN 0064      8031      FORMAT('+|      |',8(12X,'|'))
      ISN 0065      8021      FORMAT('+',112('_'))
      ISN 0066                RETURN
 002)                         C
      ISN 0067                END
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*     SOURCE STATEMENTS =      66, PROGRAM SIZE =     1966, SUBPROGRAM NAME =PRINT6
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                  114K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL	STATEMENT NUMBERS			
A	0003				
I	0003				
AL	0002	0004			
A1	0003	0005			
A2	0003	0007			
B1	0003	0005			
B2	0003	0007			
FI	0003				
IT	0003	0005	0007		
ADT	0003				
ALC	0003				
ALO	0003	0004			
CZD	0003				
OBK	0003	0005	0007		
PGF	0003				
RAD	0002	0005	0007		
VAF	0003				
VGF	0003				
AREA	0003				
CON0	0003				
CON2	0003				
DELT	0004	0005	0005	0007	0007
IVAF	0003				
IVBD	0003				
IVGF	0003				
JPGF	0003				
LANE	0003				
LIFE	0003				
MYRE	0003				
PGF0	0003				
REM0	0003				
VINC	0003				
VPOP	0003				
XINC	0003				
YINC	0003				
BVPOP	0003				
JMYLE	0003				
MODYN	0003				
MYREF	0003				
VBD74	0003				
VBD77	0003				
VBD85	0003				
VBD90	0003				
WIDTH	0003				
XKINK	0003				
FPAREA	0003				
FPHDAD	0003				
IEUAGE	0003				

```
                                  / STRUCTURED SOURCE LISTING /
(001  ISN 0002          FUNCTION RAD(AL)
                        CX RAD      LAST UPDATE:
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                  B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                  B1   3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),
                  B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                  B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                  B1   6XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),
                  B1   7MYREF(6),IVBD(14),LIFE(4),IEGAGE(6),JWYLE(9,4),
                  B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I
                        C
                        C RAD GIVES THE DISTANCE AT WHICH A GIVEN LEVEL AL OCCURS, GIVEN AL0
                        C IT IS AN INVERSE WYLE CURVE READER
                        C
      ISN 0004          DELT=AL0-AL
      ISN 0005          IF(DELT.LE.DBK(IT))RAD=   1.0E1**((DELT-B1)/A1)
      ISN 0007          IF(DELT.GT.DBK(IT))RAD=   1.0E1**((DELT-B2)/A2)
      ISN 0009          RETURN
                        C       DEBUG SUBCHK,TRACE,INIT,SUBTRACE
001)                    C
      ISN 0010          END

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       9, PROGRAM SIZE =      390, SUBPROGRAM NAME =   RAD

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(44X) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS										
A	0003											
I	0003											
A1	0003											
A2	0003											
B1	0003											
B2	0003											
F1	0003											
IT	0003											
JJ	0006	0007	0007	0007	0009	0009	0009	0009	0011	0011	0011	0011	0011
ADT	0003											
ALC	0003											
ALO	0003											
CZD	0003											
DBK	0003											
NAT	0004											
NHT	0004											
NSR	0004											
NVT	0004											
PGF	0003	0007	0009	0011								
VAF	0003											
VGF	0003											
AREA	0003											
CONG	0003											
CON2	0003											
DDBA	0004											
IVAF	0003											
IVBD	0003											
IVGF	0003											
JPGF	0003											
LANE	0003											
LIFE	0003											
MILE	0004											
MYRB	0004	0007	0009	0011								
MYRC	0002	0007	0007	0009	0009	0009	0011	0011				
MYRE	0003											
NIDD	0004											
NLEV	0004											
NYRN	0004											
PGFO	0003	0007	0009	0011								
PINC	0005	0005	0007	0009	0009	0011	0011	0011				
REMO	0003											
C	0003											
	0003											
	0004											
	0003											
	0003											
	04											
	4											

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS
BVPOP	0003
ENIDB	0004
EXPDB	0004
GVTOT	0004
JMYLE	0003
MODYR	0003
MYREF	0003
MYREG	0004
N16DB	0004
PEXPJ	0004
PEXPK	0004
PIMPJ	0004
PIMPK	0004
TOPOP	0004
VBD74	0003
VBD77	0003
VBD85	0003
VBD90	0003
WIDTH	0003
XKINK	0003
ALMPOP	0004
FPAREA	0003
FPROAD	0003
IEQAGE	0003
ITABLE	0004
MYRNET	0004
POPDEN	0004
POPEXP	0004
POPIMP	0004
POPLTN	0004
STOPGF	0004
UPDATE	0002

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
200	0015	0006

/ STRUCTURED SOURCE LISTING /

```
0002  ISN 0002            SUBROUTINE UPDATE(MYRC)                                          00070200
                          Cx UPDATE  LAST UPDATE:                                          00070210
                          C THIS SUBROUTINE UPDATES THE POPULATION GROWTH FACTOR EACH YEAR  00070300
                          C                                                                00070400
                          C IT IS CALLED AT THE BEGINNING OF A YEAR                        00070500
                          C                                                                00070600
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),  00070700
                    B1    2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                   00070710
                    B1    3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                   00070720
                    B1    4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                        00070730
                    B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                    00070740
                    B1    6XKINK,A1,A2,B1,B2,ALO,CONO,CON2,IVAF(14),                       00070750
                    B1    7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),                 00070760
                    B1    8JPGF(9),LANE(9,6),MYRE(14),IYGF(14),MO[illegible],IT,I          00070770
      IS[illegible] 0004    COMMON /BIG002/ ALREG(5,5,4,14),GVTOT([illegible]VTOT(14,9),DDBA(16),  00071000
```

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                    82   2POPEXP(9),POPIMP(9),ALAPOP(9),TOPOP(9),                                00071010
                    82   3PIMPK(6,9),PEXPK(6,9),ALAPK(6,9),PIMPJ(9,9),                           00071020
                    82   4PEXPJ(9,9),ALAPJ(9,9),POPLTN(4,9),BTOPGF(9,9),                         00071030
                    82   5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                           00071040
                    82   6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                                00071050
                    82   7MYRNET(9),MYRB,NYRN,NVT,NAT,NMT,NSR,N1608,                             00071060
                    82   8ITABLE                                                                 00071070
          ISN 0005          REAL PINC(3,5) /0.138613E-1,0.1391304E-1,0.14122137E-1,               00071300
                           C0.11654135E-1,0.14814815E-1,0.14662757E-1,                            00071310
                           C0.33707865E-2,0.32608696E-2,0.31578947E-2,                            00071320
                           C0.34690799E-2,0.32069971E-2,0.32485876E-2,                            00071330
                           C0.20631970E-1,0.18489985E-1,0.1716515E-1/                             00071400
                            C                                                                     00071410
                            C PINC CONTAINS THREE SETS OF INTER-EXTRAPOLATORY DATA FOR THE        00071420
                            C   POPULATION OF THE U.S. BASED ON TABLE FIVE,PG.22, NYLE REPORT    00071430
                            C      NR77-13 (OCT. 1977)                                            00071440
                            C                                                                     00071450
          ISN 0006          DO 200 JJ=1,5                                                       00071500
(001      ISN 0007          IF(MYRC.LE.1980)PGF(JJ)=PGF0(JJ)+PINC(1,JJ)*(MYRC-MYRB)             00071510
          ISN 0009          IF(MYRC.GT.1980.AND.MYRC.LE.1990)PGF(JJ)=PGF0(JJ)+                  00071520
                           CPINC(1,JJ)*(1980-MYRB)+PINC(2,JJ)*(MYRC-1980)                         00071530
          ISN 0011          IF(MYRC.GT.1990)PGF(JJ)=PGF0(JJ)+PINC(1,JJ)*(1980-MYRB)+            00071540
                           CPINC(2,JJ)*10.+PINC(3,JJ)*(MYRC-1990)                                 00071550
C-------
          ISN 0013    200   CONTINUE                                                            00071560
 001)                       C
          ISN 0014          RETURN                                                              00071570
 002)                       C
          ISN 0015          END                                                                 00071580
```

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 14, PROGRAM SIZE = 734, SUBPROGRAM NAME =UPDATE

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 118K BYTES OF CORE NOT USED

LEVEL 2.2 (SEPT 76) VARNET9R 09/360 FORTRAN H EXTENDED DATE 80.273/19.18.55 PAGE 1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOS(M),NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																	
A	0002																	
I	0002	0123	0125	0128	0128	0128	0153	0154	0156	0157	0159	0163	0163	0163	0163	0163	0165	0165	0195
	0196	0198	0198	0201	0203	0203	0205												
J	0045	0046	0046	0063	0064	0065	0068	0068	0068	0069	0069	0069	0070	0070	0072	0074	0074	0075	0075
	0078	0079	0079	0080	0080	0081	0081	0081	0082	0082	0084	0084	0084	0085	0085	0085	0086	0086	0086
	0093	0096	0099	0100	0101	0103	0104	0104	0104	0114	0115	0176	0177	0177	0181	0182	0183	0186	0187
	0187	0190	0192	0198	0198	0210	0216	0216	0219	0220	0221	0222	0235	0235	0235	0240	0247	0256	0256
	0256	0262	0269	0270	0271	0272	0279	0281	0282	0291	0295	0300	0304	0313	0314	0314	0318	0321	0324
	0324	0327	0328	0329	0333	0333													
K	0071	0072	0074	0074	0075	0075	0079	0079	0080	0080	0081	0081	0081	0082	0082	0095	0096	0099	0100
	0101	0103	0104	0104	0137	0139	0140	0141	0188	0190	0190	0190	0192	0192	0198	0198	0205	0208	0210
	0210	0212	0212	0212	0218	0219	0220	0221	0222	0225	0226	0227	0228	0231	0234	0235	0235	0240	0247
	0255	0256	0256	0258	0258	0260	0260	0262	0282	0301	0301	0302	0302	0312	0313	0313	0313	0314	0314
	0314	0317	0317	0318	0318	0319	0319												
L	0073	0074	0075	0076	0126	0128	0128	0128	0189	0190	0190	0192	0198	0203	0208	0210	0212	0212	0212
	0233	0234	0235	0256	0277	0278	0300												
M	0124	0125	0128	0128	0128	0155	0156	0157	0159	0163	0163	0163	0163	0165	0165	0199	0201	0203	0203
	0205																		
V	0004	0075																	
Y	0276	0295	0297	0302	0304														
A1	0002	0222	0270	0282															
A2	0002	0223	0282																
B1	0002	0219	0269	0282															
B2	0002	0220	0271	0282															
CL	0181	0258	0260	0260	0295	0297	0302	0304	0314										
DR	0099	0100																	
FI	0002	0314	0318	0321															
ID	0066	0068	0068	0068	0069	0069	0069	0070	0070	0074	0075	0078	0079	0079	0080	0080	0081	0081	0081
	0082	0082	0084	0084	0084	0085	0085	0085	0086	0094	0100	0103	0104	0104	0104	0185	0186	0187	0190
	0192	0210	0216	0216	0219	0220	0221	0222	0235	0235	0240	0247	0255	0256	0262	0269	0270	0271	0272
	0281	0282	0291	0300	0313	0314	0324	0324											
IT	0002	0078	0079	0080	0080	0082	0082	0186	0223										
KP	0268	0269	0270	0271	0272	0278	0282	0291	0300										
PI	0008	0028	0029	0103															
XK	0004	0079	0082	0089	0089	0221	0272												
ADD	0049																		
ADT	0002	0075																	
ALC	0002	0046	0181																
ALO	0002	0234	0235	0237	0242	0246	0278	0279	0279	0282	0282	0282	0289						
AML	0004	0075	0091	0091	0198														
CZD	0002	0079	0080	0081	0100	0104	0247	0291											
DBK	0002	0080	0082																
ENI	0172	0332	0332	0338															
FIX	0025																		
IDB	0044	0046	0046	0049	0049	0050	0051	0056	0132	0134	0135	0224	0225	0226	0227	0228	0229	0241	0242
	0246	0251	0251	0253	0253	0255	0257	0257	0258	0258	0258	0260	0260	0260	0273	0274	0276	0279	0295
	0300	0301	0301	0302	0302	0304	0311	0313	0313	0313	0314	0314	0314	0314	0315	0315	0316	0316	
JOB	0048	0049	0049	0050	0051	0056	0286	0289	0295	0297	0301	0301							
LOB	0055	0056	0056	0056															

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																	
NAT	0003	0045	0063	0093	0176													
NHT	0003	0071	0095	0137	0188	0218	0268	0312										
NID	0064	0066	0182	0185														
NSR	0003	0073	0126	0189	0233	0277												
NVT	0003	0123	0153	0195														
PGF	0002	0146	0146	0177	0187	0333												
PLO	0194	0205	0205	0208	0210	0210												
PUP	0004	0065	0086	0086	0333													
RAD	0255	0299																
SIG	0004	0012	0128															
SUM	0097	0101	0101	0103														
VAF	0002	0013	0120															
VGF	0002	0013	0120															
VML	0004	0159	0163	0163	0170	0170	0203											
XLO	0247	0250	0256	0291	0294	0300												
XUP	0250	0255	0256	0262	0294	0299	0300											
ADBA	0004	0046	0049	0049	0253	0276	0314											
ALOG	0128																	
AONE	0010	0080	0081	0222	0270													
AREA	0002	0068	0070	0084	0085													
ATWO	0009	0009	0082	0223														
BONE	0004	0081	0089	0219	0269													
BTWO	0004	0082	0089	0220	0271													
CBAR	0009	0009	0079	0080														
CDBA	0004	0046	0061	0061	0279	0295	0304											
CONO	0002	0028	0061	0061														
CON2	0002	0029	0061	0061														
DBLO	0295	0297	0299	0304	0304													
DDBA	0003	0051	0053	0056	0056	0212	0242	0246	0251	0251	0253	0255	0258	0260	0289	0295	0297	
DFCL	0100	0101	0101															
DREF	0008	0101	0103															
EDGE	0004	0070	0089	0089	0281													
ENIA	0180	0322	0322	0329	0332													
GAMM	0004	0101																
IPER	0004	0205																
IVAF	0002																	
IVBD	0002																	
IVGF	0002	0013	0120															
IYES	0167																	
IYRN	0036	0037	0037	0133	0134	0135	0138	0139	0140	0141	0143	0144	0146	0146	0148	0170	0170	0177	0216
	0216	0282	0315	0315	0316	0316	0317	0317	0318	0318	0319	0319	0324	0324	0327	0328	0329	0335	0336
	0337	0338																	
JFLO	0004	0198																	
JPGF	0002	0177	0187	0333															
KFLO	0004	0198																	
KPER	0004	0205																	
LANE	0002	0072	0096																
LIFE	0002	0013	0120																
MILE	0003	0012	0074	0190	0192	0235	0256	0300											
MYRB	0003	0030	0033																
MYRC	0144	0145	0161																
MYRE	0002	0154																	
NIDD	0003	0064	0182																
NLEV	0003	0011	0125	0156	0201														
NYRN	0003	0021	0034	0036	0041	0143													

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS														
PEXP	0173	0330	0330	0336											
PGF0	0002														
PIMP	0174	0331	0331	0337											
REMO	0002	0013	0120												
SQRT	0029	0070													
SUM1	0200	0203	0203	0205											
VINC	0002	0061	0061												
VPOP	0002	0149	0149	0163											
VTOT	0003														
XINC	0002	0061	0061												
YINC	0002														
ALREG	0003	0007	0011	0128											
ALWPJ	0003	0329													
ALWPK	0003	0141	0319	0319											
AMAX1	0246	0295	0297												
AMIN1	0255														
BVPOP	0002	0198													
CONV1	0008	0103													
CONV2	0006	0068	0069	0070	0084										
DBLEV	0240	0281													
DBSUM	0004	0049	0050	0061	0061										
ELREG	0006	0007	0128	0130	0130	0203									
ENIDB	0003	0134	0316	0316	0340										
EXPDB	0003	0135	0315	0315	0340										
FACT2	0004	0103	0106	0106	0210										
FACT3	0004	0068	0091	0091	0313	0314									
FACT4	0004	0069	0091	0091	0187										
GAMMA	0029	0029													
GVTOT	0003														
ICONT	0005	0015	0026	0151	0190	0192	0231	0266	0344						
IDUMP	0005	0015	0061	0089	0091	0106	0120	0130	0146	0149	0170	0216	0324	0340	
ILANE	0098	0099													
IPLOT	0015	0346													
IYREF	0163														
JMASK	0005	0017	0183												
JWYLE	0002	0078	0186												
KMASK	0005	0015	0190	0192	0231										
LEVEL	0127	0128	0128	0128	0158	0159	0162	0163	0163	0163	0163	0165	0165	0202	0203	0203
MIXDB	0004	0051	0056	0061	0061	0301	0301								
MODYR	0002	0161	0163	0163	0163	0165	0165								
MYOLD	0154	0161													
MYREF	0002	0013	0120												
MYREG	0003	0011	0157	0163	0163	0165	0165								
NLANE	0072	0075	0096	0098											
N16DB	0003	0044	0048	0055	0132	0224	0241	0273	0286	0311					
PDUMP	0061	0089	0091	0106	0130	0146	0149	0170	0216	0324	0340				
PEXPA	0178	0320	0320	0327	0330										
PEXPJ	0003	0327													
PEXPK	0003	0139	0317	0317											
PIMPA	0179	0321	0321	0328	0331										
PIMPJ	0003	0328													
PIMPK	0003	0140	0318	0318											
POPOP	0175	0333	0335	0335											
RNAME	0005	0023	0120	0120											
TOPOP	0003	0336													

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS												
USAGE	0198	0205											
VBD74	0002	0019	0061	0061									
VBD77	0002	0019											
VBD85	0002	0019	0061	0061									
VBD90	0002												
WIDTH	0002	0099											
XKINK	0002	0221	0272										
ALEVEL	0004	0190	0208	0210	0212	0212	0216	0216	0234	0278			
ALOG10	0080	0081	0082	0103	0210								
ALWPOP	0003	0338											
DUEDGE	0240	0246	0251	0251	0253	0281	0282	0282	0295	0297	0304		
DUMEAN	0246	0251	0253	0260									
DUMSUM	0050	0051	0053	0056	0056								
DELEXP	0300	0301	0302										
EDGEPZ	0004	0104	0240	0255	0262								
ENINET	0314	0316	0319	0322									
EXPDEC	0004	0228	0302	0302	0313	0314	0324	0324					
EXPINC	0004	0227	0301	0301	0313	0314	0324	0324					
EXPNET	0313	0315	0317	0318	0320	0321							
FACRET	0187	0235	0256										
FACTOR	0101												
FLOMIX	0004	0012	0198										
FPAREA	0002	0068	0069	0084									
FPROAD	0002	0074	0235	0256									
HIWAY2	0012	0014											
IDBFLG	0239	0244	0248	0285	0287	0292							
IEQAGE	0002												
IPRINT	0005	0015	0108	0110	0112	0118	0342	0346	0347	0349	0351	0353	0355	0357
ITABLE	0003												
IVMASK	0005	0015	0196										
MYRNET	0003	0021	0030	0033	0037	0037	0041	0144					
NLEVEL	0125	0127	0156	0157	0162	0201	0202						
NPMILE	0067	0074	0074	0084									
PERCNT	0004	0012	0205										
PMYEXP	0004	0225	0258	0258	0313	0324	0324						
PMYLWP	0004	0226	0260	0260	0314	0324	0324						
POPDEN	0003	0069	0085										
POPEXP	0003	0336	0340										
POPIMP	0003	0337											
POPINC	0256	0257	0258	0260									
POPLTN	0003	0085	0086										
PRINT1	0108												
PRINT2	0110												
PRINT3	0112												
PRINT4	0118												
PRINT5	0342												
PRINT6	0346												
PRINT7	0347												
PRINT8	0349												
PRINT9	0351	0353											
PRNT10	0355												
PRNT11	0357												
PXPOBK	0004	0229	0235	0235	0257	0257	0274	0300					
REGSCN	0011												
SEMESC	0114												

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS					
STOPGF	0003	0177	0340			
UPDATE	0145					
VEHGFI	0013	0117				
VEHPUP	0148					
WDTHPZ	0004	0084	0089	0089	0104	0235
XMINUS	0046					

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES			
4	0101				
5	0075				
13	0036				
22	0044	0034			
23	0063				
41	0123				
43	0132				
50	0143	0026			
54	0153				
999	0018	0017			
1000	0016	0015			
1001	0020	0019			
1002	0022	0021			
1003	0024	0023			
1300	0040	0036			
1310	0039	0037			
1320	0032	0030			
1330	0043	0041			
2200	0060	0044			
2201	0059	0048	0053		
2202	0058	0055			
2203	0047	0045			
2300	0088	0063			
2301	0102	0098			
2302	0083	0071			
2303	0077	0073			
2304	0105	0093	0094	0095	
2310	0087	0066			
3000	0114				
3002	0118	0117			
4101	0129	0123	0124	0126	0127
4300	0136	0132	0133		
4400	0142	0137	0138		
5000	0339	0145	0151		
5306	0122	0120			
5401	0169	0153	0155		
5402	0160	0158			
5403	0166	0161	0165		
5404	0167	0162			
5510	0334	0176	0183		
5520	0326	0185			
5530	0215	0188	0189	0192	
5532	0214	0212			
5610	0207	0195	0196		
5620	0206	0199			

*****FORTRAN CROSS REFERENCE LISTING*****

LABEL	DEFINED	REFERENCES		
5030	0204	0202		
5713	0310	0218	0231	0266
5714	0265	0233	0237	0262
5715	0264	0241	0242	
5716	0255	0249		
5717	0250	0244		
5720	0309	0268		
5721	0308	0273	0274	
5722	0307	0277	0279	0304
5723	0306	0286	0289	
5724	0294	0287		
5726	0295	0293		
5727	0323	0311	0312	
5728	0230	0224		
5790	0284	0282		
6001	0357	0344		
7000	0359			

/ STRUCTURED SOURCE LISTING /

```
C MAIN
C  THIS IS A PROGRAM WHICH CALCULATES THE NUMBER OF PEOPLE
C  IMPACTED  BY NOISE ORIGINATING FROM HIGHWAY TRAFFIC.
C
CF  DESCRIPTION:  THIS IS FILE' VARNET4
CF VARNET4 LAST UPDATE:       11/13/78 16:06:16
CC BIG001  LAST UPDATE:       10/31/78 22:26:23
CC BIG002  LAST UPDATE:       10/18/78 17:36:26
CC BIG003  LAST UPDATE:       11/07/78 17:39:27
CC BIG004  LAST UPDATE:       11/01/78 14:13:45
C FEATURES:     WAS VARNET1, CORRECTION EVERY  YEAR (WITHOUT LINE 32270)
C                RETAINED MOST NOTAN7 CHARACTERISTICS
C                SOME FEATURES OF NOTAV88 ADDED:E.G ELREG
C                LAP DERIVED FROM EXPOSURE IN DB BANDS
C                CHANGE IN LOCAL CRITERION PERMITTED (I.E. ALC(J))
C                VARIABLE NET: READS IN A NET OF YEARS
C                NEW SUBROUTINES,CONSOLIDATED COMMON AREAS
C                   E.G. BACGRO, VEHPOP
C                NON-REF SUBROUTINES DELETED: MRF,MWAS,CON
C                EXTENSIVE REFORMATTING OF TEXT
C                CONSOLIDATION OF BACGRO INTO VEHPOP
C                DELETION OF VARIABLE GAM
C                MIXDB ARRAY FIXED....HAD UNDEFINED NUMBERS FOR LOW IDB.
C                RESTRUCTURING OF LOWEST LEVEL IMPACT: NOW COMPUTED IN
C                    PRIMARY, ADDITIONAL AND DECREMENTAL SECONDARY EXPO-
C                    SURE. OLD ARRAYS REMOVED.
C                DO LOOPS WITH SAME END POINT GIVEN SEPARATE ONES
C                TESTS FOR ILLEGAL SITUATIONS
C                FULL CONTROL FOR DUMP AND PRINT
C                REGULATION SCENARIO IS NOW ITS OWN SEPARATE FILE
C                ARRAY B SPLIT INTO TWO SEPARATE ONES
C                SELECTED ZEROING OF ALEVEL(K,L) TO ISOLATE EFFECT OF
C                    ROADWAY TYPES
C                IF ALEVEL=0, PUT EVERYBODY INTO LOWEST DB BAND
C                TEN PRINT SUBROUTINES
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                      C                NEW VBD METHODOLOGY---VBD74 MOVED INTO FILE4
                      C                VBD IS NOW INTERPOLATED FROM INPUT ARRAYS FOR 77 & 85
                      C                CONV1 AND CONV2 MOVED WHOLLY INTO MAIN PROGRAM
                      C                SKIP FEATURE ADDED
                      C                VINC,XINC COMPUTED IN FIX, FIX INVOKED EARLIER
                      C                NEW CONTROL STRING ICONT SKIPS CERTAIN SECTIONS
                      C                NEW KFLO ARRAY
                      C                NEW FLOMIX DIMENSIONS
                      C                NEW REMO DATA
                      C                FULL CURRENT MODEL YEAR POPULATION ON ROAD.
                      C                BLOCK DATA AND OTHER SUBROUTINES MOVED INTO VARNET4A
                      C$
                      C
                      C MAIN PROGRAM
                      C
                      C SECTION 1.0    DATA MANAGEMENT
                      C
                      C SECTION 1.1 COMMON BLOCKS, DIMENSIONS
                      C
(045  ISN 0002        COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
               B1    2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
               B1    3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),
               B1    4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
               B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
               B1    6XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),
               B1    7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),
               B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I
                      C
                      C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                      C
      ISN 0003        COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),
               B2    2POPEXP(9),PUPIMP(9),ALWPOP(9),TOPOP(9),
               B2    3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),
               B2    4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STOPGF(9,9),
               B2    5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIOD(9),
               B2    6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),
               B2    7MYRNET(9),MYRB,NYRA,NVT,NAT,NHT,NSK,N16DB,
               B2    8ITABLE
                      C
                      C END PRINT  COMMON BLOCK
                      C
      ISN 0004        COMMON /BIG003/ GAMM(6,9),ALEVEL(6,5),BONE(4,9,6),BTWO(4,9,6),
               B3    2XK(4,9,6),FACT2(4,9,6),AML(9,6,5),VML(14,4,5),
               B3    3EDGE(4,9),EDGEPZ(4,9,6),WDTHPZ(4,9),POP(9),V(5),
               B3    4SIG(5,4,5,14),FLOMIX(14,4,5),PERCNT(4,2,4),
               B3    5PMYEXP(16,6),PMYLMP(16,6),EXPINC(16,6),
               B3    6EXPDEC(16,6),PXPDBK(16),CDBA(9,16),ADBA(16),
               B3    7DBSUM(16,16),MIXDB(16,16),FACT3(4,9),FACT4(4,9),
               B3    8JFLO(9),KFLO(6),KPER(6),IPER(14)
      ISN 0005        COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),KMASK(6),
               B4    2ICONT(12) , JMASK(9)
                      C
                      C SECTION 1.2    INITIALIZE AND READ IN SOME DATA
                      C
      ISN 0006        DIMENSION ELREG(5,5,4,14)
      ISN 0007        EQUIVALENCE (ALREG(1),ELREG(1))
      ISN 0008        DATA PI/3.1415927/,DREF/50./,CONV1,CONV2/5.83963E4,2.64E3/
      ISN 0009        REAL ATWO(3)/12.564608,12.564708,15.0/,AR(3)/2*150.,50./
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      ISN 0010            DIMENSION ADNE(4,9,6)
                          C
                          C SECTION 1.2.1  DEFINE NAMELISTS, READ IN MILEAGE AND TIMESTREAM
                          C                NET DATA, AND IPLOT
                          C
      ISN 0011            NAMELIST/REGSCN/ ALREG,NLEV,MYREG
      ISN 0012            NAMELIST/HIWAY2/ MILE,PERCNT,FLOMIX,BIG
      ISN 0013            NAMELIST/VEHDF1/ VGF,IVGF,REMD,MYREF,VAF,LIFE
      ISN 0014            READ(3,HIWAY2)
      ISN 0015            READ(4,1000) IPLOT,IPRINT,IDUMP,KMASK,IVMASK,ICONT
      ISN 0016      1000  FORMAT(10X,I1/10X,12I1/10X,12I1/10X,6I1/10X,14I1/10X,12I1)
                          C FOLL. STMT. ADDED 1980-04-25 BY RRACKL
      ISN 0017            READ(4, 999) JMASK
      ISN 0018       999  FORMAT(10X,9I1)
      ISN 0019            READ(4,1001) VBD74,VBD77,VBD85
      ISN 0020      1001  FORMAT(4(10X,7(F6.3,1X)/))
      ISN 0021            READ(4,1002) NYRN,MYRNET
      ISN 0022      1002  FORMAT(10X,I2/10X,9(I4,1X))
      ISN 0023            READ(4,1003) RNAME
      ISN 0024      1003  FORMAT(10X,5A4)
                          C
                          C
                          C SECTION 1.2.5    COMPUTE ARRAYS USED BY FUNCTION VBD
                          C
      ISN 0025            CALL FIX
                          C
                          CSKIP
                          C
      ISN 0026            IF(ICONT(1).EQ.1) GOTO 50
                          C
                          C COMPUTE VARIOUS CONSTANTS
                          C
      ISN 0028               CON1=PI
      ISN 0029               CON2=PI*GAMMA( 1.5E0)/ SQRT( 2.0E0)/GAMMA( 1.25E0)**2
                             C
                             C SECTION 1.3   CHECK TIMESTREAM NET POINTS FOR ORDERING AND LIMITS
                             C
      ISN 0030               IF(MYRNET(1).NE.MYRB)WRITE(6,1320)
      ISN 0032      1320     FORMAT(' ','FIRST YEAR IS NOT BASELINE...HAS BEEN RESET')
      ISN 0033               MYRNET(1)=MYRB
      ISN 0034               IF (NYRN.EQ.1)     GOTO 22
                             C
      ISN 0036        13        DO 1300 IYRN   = 2,NYRN
                                C
                                IF(MYRNET(IYRN).LE.MYRNET(IYRN-1))WRITE(6,1310)
(042  ISN 0037
      ISN 0039      1310        FORMAT(' ','YEARS NOT IN ASCENDING ORDER        ')
                                C
      ISN 0040      1300        CONTINUE
                                C
                                C
042)                            IF(MYRNET(NYRN).GT.2013)WRITE(6,1330)
      ISN 0041
      ISN 0043      1330        FORMAT('0','0'/'0'   LAST NET YEAR IS LATER THAN 2013...')
                                C
                                C SECTION 2.0    COMPUTE VARIOUS NUMBERS BEFORE TIMESTREAM
                                C
                                C
                                C SECTION 2.2   DERIVE DBSUM,COBA AND MIXDB ARRAYS
                                C
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C--------
      ISN 0044        22      DO 2200 IDB     = 2,N16DB
                              C
(043  ISN 0045                DO 2203 J       = 1,NAT
(036  ISN 0046                CDBA(J,IDB) = XMINUS(ALC(J),ADBA(IDB))
      ISN 0047      2203      CONTINUE
                              C
 036)                         C
      ISN 0048                DO 2201 JDB     = 2,N16DB
                              C
(034  ISN 0049                DBSUM(IDB,JDB) = ADD(ADBA(IDB),ADBA(JDB))
      ISN 0050                DDBSUM = DBSUM(IDB,JDB)
      ISN 0051                IF(DDBSUM.GT.DDBA(1)) MIXDB(IDB,JDB) = 1
      ISN 0053                IF(DDBSUM.GT.DDBA(1)) GO TO 2201
                              C
      ISN 0055                   DO 2202  LDB    = 2,N16DB
                              C
(026  ISN 0056                   IF(DDBSUM.GE.DDBA(LDB).AND.DDBSUM.LT.DDBA(LDB-1))
                            C     MIXDB(IDB,JDB) = LDB
                              C
      ISN 0058      2202.       CONTINUE
                              C
 026)
C--------
      ISN 0059      2201      CONTINUE
 034)                         C
      ISN 0060      2200      CONTINUE
                              C
                              C  DUMP CDBA,DBSUM,MIXDB AND CON0,CON2
                              C
 043)                         C
      ISN 0061                IF(IDUMP(1).EQ.1) CALL PDUMP(CDBA(1,1),CDBA(9,16),5,
                    D1    2   MIXDB(2,2),MIXDB(16,16),4,CON0,CON0,5,
                    D1    3   CON2,CON2,5,DBSUM(1,1),DBSUM(16,16),5,
                    D1    4   VBD74(1),VBD74(14),5,VBD85(1),VBD85(7),5,
                    D1    5   XINC(1),XINC(7),5,YINC(1),YINC(7),5)
                              C
                              C SECTION 2.3   THE FOLLOWING BLOCK PROCESSES THE ADT AND DELINEATES
                              C               THE POPULATED ZONE ASSOCIATED WITH EACH ID,J AND K.
                              C
                              C
      ISN 0063        23      DO 2300 J       = 1,NAT
                              C
(041  ISN 0064                NID     = NIDD(J)
      ISN 0065                POP(J) = 0.0E0
                              C
      ISN 0066                DO 2310 ID      = 1,NID
                              C
(033  ISN 0067                NPMILE = 0
      ISN 0068                FACT3(ID,J)     = FPAREA(J,ID)/AREA(ID,J)/CONV2
      ISN 0069                FACT4(ID,J)     = POPDEN(ID,J)/CONV2/FPAREA(J,ID)
      ISN 0070                EDGE(ID,J)      = CONV2*SQRT(AREA(ID,J))
                              C
      ISN 0071                DO 2302 K       = 1,NHT
                              C
(025  ISN 0072                NLANE           = LANE(J,K)
                              C
      ISN 0073                DO 2303 L       = 1,N3K
(019  ISN 0074                NPMILE = NPMILE+MILE(K,J,ID,L)*FPRO(J,K)
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      ISN 0075      5       IF(ID.EQ.1)  AML(J,K,L) = ADT(K,J)/V(L)/NLANE
      ISN 0077      2303    CONTINUE
                            C
                            C SECTION 2.4  COMPUTE DERIVED AXLE CURVE COEFFICIENTS AND X AT KINK
                            C
019)                        C
      ISN 0078              IT             = JWYLE(J,ID)
      ISN 0079              XK(ID,J,K)     = CZD(ID,J,K) + CBAR(IT)
      ISN 0080              AONE(ID,J,K) = DBK(IT) / ALOG10(1. + CBAR(IT)/CZD(ID,J,K))
      ISN 0081              BONE(ID,J,K) = -AONE(ID,J,K) * ALOG10(CZD(ID,J,K))
      ISN 0082              BTWO(ID,J,K) = DBK(IT) - ATWO(IT) * ALOG10(XK(ID,J,K))
                            C
      ISN 0083      2302    CONTINUE
                            C
                            C SECTION 2.3.1  COMPUTE WDTHPZ(WIDTH OF THE POPULATED ZONE) AFTER
                            C                OBTAINING NUMBER OF POPULATED MILES, NPMILE.
                            C                COMPUTE POPULATION BY AREA ID,J AND ALSO BY J ALONE
                            C
025)                        C
      ISN 0084              WDTHPZ(ID,J) = AREA(ID,J)*FPAREA(J,ID)/NPMILE*CONV2
      ISN 0085              POPLTN(ID,J) = POPDEN(ID,J)*AREA(ID,J)
      ISN 0086              POP(J)       = POP(J)+POPLTN(ID,J)
                            C
      ISN 0087      2310    CONTINUE
033)                        C
      ISN 0088      2300    CONTINUE
041)                        C
      ISN 0089              IF(IDUMP(2).EQ.1) CALL PDUMP(WDTHPZ(1,1),WDTHPZ(4,9),5,
                  D2  2     EDGE(1,1),EDGE(4,9),5,BONE(1,1,1),BTWO(4,9,6),5,
                  D2  3     XK(1,1,1),XK(4,9,6),5)
      ISN 0091              IF(IDUMP(3).EQ.1) CALL PDUMP(FACT3(1,1),FACT3(4,9),5,
                  D3  2     FACT4(1,1),FACT4(4,9),5,
                  D3  3     AML(1,1,1),AML(9,6,5),5)
                            C
                            C SECTION 2.3.2  COMPUTE CONSTANT ARRAYS IN THE NOISE EQUATION
                            C
      ISN 0093              DO 2304 J      = 1,NAT
(040  ISN 0094              DO 2304     ID = 1,4
(031  ISN 0095              DO 2304 K      = 1,AHT
                            C
(023  ISN 0096              NLANE  = LANE(J,K)
      ISN 0097              SUM    = 0.0E0
                            C
      ISN 0098              DO 2301 ILANE  = 1,NLANE
                            C
(016  ISN 0099              DR     = WIDTH(J,K) * (ILANE- 0.5E0)
      ISN 0100              DFCL   = DR + CZD(ID,J,K)
      ISN 0101        4     SUM    = SUM + FACTOR(GAMM(K,J),DREF,DFCL)/DFCL
                            C
      ISN 0102      2301    CONTINUE
                            C
016)                        C
      ISN 0103              FACT2(ID,J,K) = ALOG10(SUM*PI*DREF**2/CONV1)
                            C
                            C SECTION 2.3.3  COMPUTE THE EDGE OF THE POPULATED ZONE
                            C
      ISN 0104              EDGEPZ(ID,J,K)  =  CZD(ID,J,K)+WDTHPZ(ID,J)
                            C
```

```
      ISN 0105      2304    CONTINUE
                            C
                            C DUMP FACT2 ARRAY
                            C
023)                        C
031)                        C
040)                        C
      ISN 0106              IF(IDUMP(4).EQ.1) CALL PDUMP(FACT2(1,1,1),FACT2(4,9,6),5)
                            C
                            C SECTION 3.0   READ A REGULATION SCENARIO, AND (FOR THE FIRST LOOP)
                            C                          SIG, PERCNT AND FLOMIX
                            C
                            C
                            C CALL PRINT4, PRINTS CONSTANT DATA
                            C
      ISN 0108              IF(IPRINT(1).EQ.1)  CALL PRINT1
      ISN 0110              IF(IPRINT(2).EQ.1)  CALL PRINT2
      ISN 0112              IF(IPRINT(3).EQ.1)  CALL PRINT3
                            C
                            C   READ A REGULATION SCENARIO
                            C FOLLOWING 2 STATEMENTS INSERTED BY KRACKL 1980-5-5. SUBROUTINE
                            C SERESC 'SELECTS REGULATION SCENARIOS' FROM THE NOISE LEVEL
                            C DICTIONARY FILE ON UNIT 8 ACCORDING TO INSTRUCTIONS ON UNIT 2.
C--------
      ISN 0114      3000    CALL SERESC(J)
      ISN 0115              IF(J.EQ.-1) STOP 1111
      ISN 0117              READ(5,VEHGF1,END=3002)
                            C
                            C CALL PRINT4, TO PRINT THE REGULATION SCENARIO
                            C
      ISN 0118      3002    IF(IPRINT(4).EQ.1)  CALL  PRINT4
      ISN 0120              IF(IDUMP(5).EQ.1) WRITE(6,5306) RNAME,REMO,VGF,IVGF,
                          *
      ISN 0122      5306    FORMAT( '1#8 DUMP: REMO',T110,5A4/'0'/17(1X,6E12.3/)/
                    D8   4  !0#8 DUMP: VGF(IYRN,IVBO)'/'0'/24(2X,10(F5.3,', ')/)/
                    D8   5  '0#8 DUMP: IVGF(I)'/'0'/'  ',14(I1,2X)/
                    D8   6  '1#8 DUMP: VAF(IVAF,1AGE)',T110,5A4/13(9X,4F8.4,9X,4F8.4/)
                    D8   7  /'0#8 DUMP: LIFE(IVAF)'/'0'/T10,4I3/
                    D8   8  '0#8 DUMP: MYREF(IVBBO)'/'0'/T10,6I8)
                            C
                            C SECTION 4.0   PRE-TIMESTREAM CHORES FOR EACH COMPUTATION
                            C
                            C
                            C SECTION 4.1      COMPUTE ELREG ARRAY FROM REGULATION LEVELS.
                            C
C--------
      ISN 0123       41.    DO 4101 I       = 1,NVT
(039  ISN 0124              DO 4101 M       = 1,4
                            C
(030  ISN 0125              NLEVEL = NLEV(I,M)
                            C
      ISN 0126              DO 4101 L       = 1,NSR
(022  ISN 0127              DO 4101 LEVEL   = 1,NLEVEL
                            C
(014  ISN 0128              ELREG(LEVEL,L,M,I) =  1.0E1**((ALREG(LEVEL,L,M,I)+
                        C   ALOG( 1.0E1)/ 2.0E1*SIG(L,M,LEVEL,I)**2)/ 1.0E1)
                            C
      ISN 0129      4101    CONTINUE
```

```
                                C
                                C  DUMP ELREG ARRAY
                                C
 014)                           C
 022)                           C
 030)                           C
 039)                           C
      ISN 0130                  IF(IDUMP(6).EQ.1) CALL PDUMP(ELREG(1,1,1,1),ELREG(5,5,4,14),
                          DO  2 5)
                                C
                                C  SECTION 4.3   ZERO EXPOSURE IN DB BAND ACCUMULATORS
                                C 43
      ISN 0132           43    DO 4300 IDB    = 1,N16DB
(038  ISN 0133            .     DO 4300 IYRN   = 1,9
                                C
(029  ISN 0134                  ENIDB(IDB,IYRN)= 0.0E0
      ISN 0135                  EXPDB(IDB,IYRN)= 0.0E0
                                C
      ISN 0136           4300   CONTINUE
                                C
                                C SECTION 4.4  ZEROS EXPOSURE BY HIGHWAY TYPE ARRAYS
                                C
 029)                           C
 038)                           C
      ISN 0137                  DO 4400 K      = 1,NHT
(037  ISN 0138                  DO 4400 IYRN   = 1,9
                                C
(028  ISN 0139                  PEXPK(K,IYRN)= 0.0E0
      ISN 0140                  PINPK(K,IYRN)= 0.0E0
      ISN 0141                  ALNPK(K,IYRN)= 0.0E0
                                C
      ISN 0142           4400   CONTINUE
                                C
                                C SECTION 5.0   TIME STREAM LOOP. IYRN=ORDINAL OF A NET YEAR.
                                C                                 MYRN=A NET YEAR
                                C
 028)                           C
 037)                           C
      ISN 0143            50  DO 5000 IYRN   = 1,NYRN
                              C
(044  ISN 0144                MYRC=MYRNET(IYRN)
                              C
                              C SECTION 5.1   COMPUTE POPULATION GROWTH FACTOR IN THE CURRENT YEAR
                              C
      ISN 0145                CALL UPDATE(MYRC)
                              C
                              C DUMP CURRENT PGF
                              C
      ISN 0146                IF(IDUMP(7).EQ.1) CALL PDUMP(IYRN,IYRN,4,PGF(1),PGF(5),5)
                              C
                              C SECTION 5.2   COMPUTE THE CURRENT VEHICULAR POPULATION AND MYRE(I),
                              C               THE CURRENT EARLIEST YEAR OF SURVIVAL, FOR THE BASE-
                              C               LINE YEAR, BACKGROW THE REMO ARRAY AFTER ASSIGNMENT
                              C
      ISN 0148                CALL VEHPOP(IYRN)
                              C
                              C DUMP VPOP ARRAY
                              C
```

```
      ISN 0149           IF(IDUMP(8).EQ.1) CALL PDUMP(VPOP(1,1),VPOP(14,26),5)
                         C
                         CSKIP
                         C
      ISN 0151           IF(ICONT(1).EQ.1) GOTO 5000
                         C
                         C SECTION 5.4   COMPUTE NUMBER OF CARS IN EACH NOISE RANGE
                         C
      ISN 0153      54     DO 5401 I       = 1,NVT
                           C
(035  ISN 0154             MYOLD=MYRE(I)
                           C
      ISN 0155             DO 5401 M       = 1,4
                           C
(027  ISN 0156             NLEVEL=NLEV(I,M)
      ISN 0157             MYREG(NLEVEL+1,M,I)=2014
                           C
      ISN 0158             DO 5402 LEVEL   = 1,5
(021  ISN 0159             VML(I,M,LEVEL)= 0.0E0
      ISN 0160      5402   CONTINUE
                           C
                           C SORT CARS INTO NOISE GROUPS ACCORDING TO THE REGULATION SCENARIO
                           C
 021)                      C
      ISN 0161             DO 5403 MODYR   = MYOLD,MYRC
(020  ISN 0162             DO 5404 LEVEL   = 1,NLEVEL
                           C
(013  ISN 0163             IF(MODYR.GE.MYREG(LEVEL,M,I).AND.MODYR.LT.MYREG(LEVEL+1,M,I))
                       C   VML(I,M,LEVEL) = VML(I,M,LEVEL)+VPOP(I,IYES(IYREF(MODYR)))
      ISN 0165             IF(MODYR.GE.MYREG(LEVEL,M,I).AND.MODYR.LT.MYREG(LEVEL+1,M,I))
                       C   GO TO 5403
                           C
C-------
      ISN 0167      5404     CONTINUE
 013)                      C
C-------
      ISN 0168      5403   CONTINUE
                           C
 020)                      C
      ISN 0169      5401   CONTINUE
                           C
                           C DUMP VML
                           C
 027)                      C
 035)                      C
      ISN 0170             IF(IDUMP(9).EQ.1) CALL PDUMP(IYRN,IYRN,M,
                     D9  2 VML(1,1,1),VML(14,4,5),5)
                           C
                           C SECTION 5.5   COMPUTE AND SUM EXPOSURE AND IMPACT NUMBERS OVER
                           C                J,K,ID,L
                           C
                           C SECTION 5.5.1  SET UP LAND USE AREA LOOP (J LOOP)
                           C
      ISN 0172             ENI    = 0.0E0
      ISN 0173             PEXP   = 0.0E0
      ISN 0174             PIMP   = 0.0E0
      ISN 0175             POPOP  = 0.0E0
                           C
```

```
      ISN 0176              DO 5510 J      = 1,NAT
                            C
(032  ISN 0177              STOPGF(J,IYRN)=PGF(JPGF(J))
      ISN 0178              PEXPA  = 0.0E0
      ISN 0179              PIMPA  = 0.0E0
      ISN 0180              ENIA   = 0.0E0
      ISN 0181              CL     = ALC(J)
      ISN 0182              NID    = NIDD(J)
                            C FOLLOWING STATEMENT ADDED 1980-04-25 BY R RACKL
      ISN 0183              IF (JMASK(J).EQ.0)GOTO 5510
                            C
                            C SECTION 5.5.2  SET UP VARIABLE POPULATION DENSITY LOOP (ID LOOP)
                            C
      ISN 0185                 DO 5520 ID     = 1,NID
                               C
(024  ISN 0186                 IT=JNYLE(J,ID)
      ISN 0187                 FACRET=FACT4(ID,J)*PGF(JPGF(J))
                               C
                               C SECTION 5.5.3  SET UP HIGHWAY TYPE LOOP (FIRST K LOOP)
                               C
      ISN 0188                 DO 5530 K      = 1,NHT
                               C
                               C
                               C SECTION 5.5.4  SET UP SPEED RANGE LOOP (L LOOP)
                               C
(018  ISN 0189                 DO 5530 L      = 1,NSR
                               C
(012  ISN 0190                 IF(MILE(K,J,ID,L).EQ.0.OR.(KMASK(K).EQ.0.AND.ICONT(3).EQ.0))
                         *     ALEVEL(K,L) = 0.0E0
      ISN 0192           *     IF(MILE(K,J,ID,L).EQ.0.OR.(KMASK(K).EQ.0.AND.ICONT(3).EQ.0))
                         *     GO TO 5530
      ISN 0194                    PLO= 0.0E0
                                  C
                                  C SECTION 5.6    COMPUTE NOISE LEVEL AND IMPACT NUMBERS ASSOCIATED WITH
                                  C                HIGHWAY TYPE K,L IN AREA ID,J
                                  C
                                  C SECTION 5.6.1  SUM NOISE CONTRIBUTION FROM ALL VEHICLE TYPES I.
                                  C
      ISN 0195                    DO 5610 I      = 1,NVT
                                  C
                                  C CALCULATE USAGE FACTOR AND CURRENT NO OF TYPE I VEHICLES ON ROAD
                                  C
(007  ISN 0196                    IF(IVMASK(I).EQ.0)  GOTO 5610
      ISN 0198                       USAGE=AML(J,K,L)*FLOMIX(I,JFLO(J),KFLO(K))/BVPOP(I)
                                     C
                                     C SECTION 5.6.2  SUM NOISE CONTRIBUTION FROM EACH OPERATING MODE M.
                                     C
      ISN 0199                       DO 5620 M      = 1,4
                                     C
(004  ISN 0200                       SUMI= 0.0E0
      ISN 0201                       NLEVEL=NLEV(I,M)
                                     C
                                     C SECTION 5.6.3  SUM NOISE CONTRIBUTION FROM EACH NOISE RANGE, LEVEL.
                                     C
      ISN 0202                       DO 5630 LEVEL  = 1,NLEVEL
(002  ISN 0203                       SUMI=SUMI+VML(I,M,LEVEL)*ELREG(LEVEL,L,M,I)
      ISN 0204           5630       CONTINUE
                                     C
```

```
002)
     ISN 0205                        C
                                     PLO=PLO+SUM1*PERCNT(M,KPER(K),IPER(I))*USAGE
                                     C
     ISN 0206     5620               CONTINUE
004)
                                     C
     ISN 0207     5610          CONTINUE
                                C
                                C SECTION 5.6    CONTINUED. COMPUTE PLO AND ALO FROM SUM
                                C
007)                            C
     ISN 0208                   IF(PLO.EQ. 0.0E0)ALEVEL(K,L)= 0.0E0
     ISN 0210                   IF(PLO.NE. 0.0E0)ALEVEL(K,L)= 10.**(ALOG10(PLO)+FACT2(ID,J,K))
     ISN 0212                   IF(ALEVEL(K,L).GT.DDBA(1)) WRITE(6,5532) K,L,ALEVEL(K,L)
     ISN 0214     5532          FORMAT(' ','ALEVEL IS TOO HIGH...K= ',I2,' L= ',I2,' ALO=',
                       C        F10.3)
                                C
C*******
     ISN 0215     5530     CONTINUE
                           C
                           C
                           C DUMP ALEVEL
                           C
012)                       C
018)                       C
     ISN 0216              IF(IDUMP(10),EQ.1) CALL PDUMP(IYRN,IYRN,4,J,J,4,IDBID,4,
                 D10  2    ALEVEL(1,1),ALEVEL(6,5),5)
                           C
                           C SECTION 5.7  COMPUTATION OF SECONDARY EXPOSURE FOR THE BASELINE YEAR
                           C
                           C
                           C SECTION 5.7.1  FIRST COMPUTE DETAILED EXPOSURE IN DB BANDS
                           C
     ISN 0218              DO 5713 K      = 1,NHT
                           C
(017 ISN 0219              B1      = BONE(ID,J,K)
     ISN 0220              B2      = BTWO(ID,J,K)
     ISN 0221              XKINK   = XK(ID,J,K)
     ISN 0222              A1      = AONE(ID,J,K)
     ISN 0223              A2      = ATWO(IT)
                           C
     ISN 0224              DO 5728 IDB    = 1,N16DB
                           C
(011 ISN 0225              PMYEXP(IDB,K)     = 0.0E0
     ISN 0226              PMYLWP(IDB,K)     = 0.0E0
     ISN 0227              EXPINC(IDB,K)     = 0.0E0
     ISN 0228              EXPDEC(IDB,K)     = 0.0E0
     ISN 0229              PXPDBK(IDB)       = 0.0E0
                           C
     ISN 0230     5728     CONTINUE
                           C
011)                       C
     ISN 0231              IF(ICUNT(3).EQ.1.AND.KMASK(K).EQ.0)  GO TO 5713
                           C
     ISN 0233                 DO 5714 L      = 1,NSR
                              C
(010 ISN 0234                 ALO    = ALEVEL(K,L)
     ISN 0235                 IF(ALO.LE. 0.0E0)  PXPDBK(16) = PXPDBK(16) +
                       C      WDTHPZ(ID,J)*MILE(K,J,ID,L)*FR  AD(J,K)*FACRET
```

```
      ISN 0237                    IF(ALO.LE. 0.0E0)  GO TO 5714
      ISN 0239                       IDBFLG = 0
      ISN 0240                       DBEDGE = DBLEV( EDGEPZ(ID,J,K))
                                     C
      ISN 0241                       DO 5715 IDB    = 2,N16DB
                                     C
(006  ISN 0242                       IF (DDBA(IDB).GE.ALO) GO TO 5715
      ISN 0244                          IF (IDBFLG.NE.0)       GO TO 5717
      ISN 0246                             DBMEAN      = (AMAX1(DDBA(IDB),DBEDGE)+ALO)/ 2.0E0
      ISN 0247                             XLO         = CZD(ID,J,K)
      ISN 0248                             IDBFLG      = 1
      ISN 0249                             GO TO 5716
                                           C
      ISN 0250    5717                     XLO         = XUP
      ISN 0251                             IF(DDBA(IDB).LT.DBEDGE) DBMEAN = (DBEDGE+DDBA(IDB-1))/ 2.0E0
      ISN 0253                             IF(DDBA(IDB).GE.DBEDGE) DBMEAN = ADBA(IDB)
      ISN 0255    5716                  XUP         = AMIN1(HAD(DDBA(IDB)),EDGEPZ(ID,J,K))
      ISN 0256                          POPINC      = FACRET*FPROAD(J,K)*(XUP-XLO)*MILE(K,J,ID,L)
      ISN 0257                          PXPDBK(IDB) = PXPDBK(IDB)+POPINC
      ISN 0258                          IF(DDBA(IDB).GE.CL)  PMYEXP(IDB,K) = PMYEXP(IDB,K)+POPINC
      ISN 0260                          IF(DDBA(IDB).GE.CL)  PMYLWP(IDB,K) = PMYLWP(IDB,K)+
                                  C     POPINC * (DBMEAN-CL) / 2.0E1
      ISN 0262                          IF(XUP.EQ.EDGEPZ(ID,J,K))  GO TO 5714
                                        C
      ISN 0264    5715               CONTINUE
 006)                                  C
C-------
      ISN 0265    5714            CONTINUE
                                  C
                                  CSKIP
                                  C
 010)                             C
      ISN 0266                    IF(ICONT(2).EQ.1)  GOTO 5713
                                  C
                                  C SECTION 5.7.2 COMPUTATION OF EXTRA IMPACT DUE TO SECONDARY EXPOSURE
                                  C
                                  C
      ISN 0268                    DO 5720 KP     = 1,NHT
                                  C
(008  ISN 0269                    B1      = BONE(ID,J,KP)
      ISN 0270                    A1      = AONE(ID,J,KP)
      ISN 0271                    B2      = BTWO(ID,J,KP)
      ISN 0272                    XKINK   = XK(ID,J,KP)
                                  C
      ISN 0273                    DO 5721 IDB    = 2,N16DB
                                  C
(005  ISN 0274                    IF(PXPDBK(IDB).EQ. 0.0E0)    GO TO 5721
      ISN 0276                       Y       = ADBA(IDB)
                                     C
      ISN 0277                       DO 5722 L       = 1,NSR
                                     C
(003  ISN 0278                       ALO     = ALEVEL(KP,L)
      ISN 0279                       IF(ALO.LE. 0.0E0.OR.CDBA(J,IDB).GE.ALO)   GO TO 5722
      ISN 0281                          DBEDGE = DBLEV(EDGE(ID,J))
      ISN 0282                          IF(DBEDGE.GE.ALO) WRITE(6,5790) IYRA,J,ID,K,KP,DBEDGE,A1,A2,
                                  C     B1,B2,ALO,ALO
      ISN 0284    5790                  FORMAT(' ',I4,4I3,1X,7F10,3)
      ISN 0285                          IDBFLG = 0
```

```
      ISN 0286                        C
                                      DO 5723 JDB    = 2,N16DB
                                      C
(001  ISN 0287                        IF(IDBFLG.NE.0)          GO TO 5724
      ISN 0289                           IF(DDBA(JDB).GE.ALO)    GO TO 5723
      ISN 0291                           XLO    = CZD(ID,J,KP)
      ISN 0292                           IDBFLG = 1
      ISN 0293                           GO TO 5726
                                         C
      ISN 0294     5724                  XLO    = XUP
      ISN 0295     5726                  IF(Y.LT.CL)  DBLO = AMAX1(CDBA(J,IDB),DDBA(JDB),DBEDGE)
      ISN 0297                           IF(Y.GE.CL)  DBLO = AMAX1(DDBA(JDB),DBEDGE)
      ISN 0299                           XUP    = RAD(DBLO)
      ISN 0300                           DELEXP = (XUP-XLO) * MILE(KP,J,ID,L) * PXPDBK(IDB)
      ISN 0301                           EXPINC(MIXDB(IDB,JDB),K) = EXPINC(MIXDB(IDB,JDB),K)+DELEXP
      ISN 0302                           IF(Y.GE.CL)  EXPDEC(IDB,K) = EXPDEC(IDB,K)-DELEXP
      ISN 0304                           IF(DBLO.LE.DBEDGE.OR.(Y.LT.CL.AND.DBLO.LE.CDBA(J,IDB)))
                                    C
                                         GO TO 5722
                                         C
      ISN 0306     5723               CONTINUE
001)                                     C
      ISN 0307     5722            CONTINUE
003)                                   C
      ISN 0308     5721         CONTINUE
005)                                 C
      ISN 0309     5720         CONTINUE
008)                                 C
      ISN 0310     5713      CONTINUE                                    C-86
                             C
                             C SECTION 5.8   DERIVE ROW AND COLUMN SUMS FROM DETAILED MATRICES
                             C
017)                         C
      ISN 0311               DO 5727 IDB    = 1,N16DB
(015  ISN 0312               DO 5727 J      = 1,NHT
                             C
(009  ISN 0313               EXPNET = PMYEXP(IDB,K)+(EXPINC(IDB,K)+EXPDEC(IDB,K))*
                        C    FACT3(ID,J)
      ISN 0314               ENINET = PMYLSP(IDB,K)+(EXPINC(IDB,K)+EXPDEC(IDB,K))*
                        C    FACT3(ID,J)*(ADBA(IDB)-CL)/ 2.0E1 * FI(J)
                             C
      ISN 0315               EXPDB(IDB,IYRN) = EXPDB(IDB,IYRN) + EXPNET
      ISN 0316               ENIDB(IDB,IYRN) = ENIDB(IDB,IYRN) + ENINET
                             C
      ISN 0317               PEXPK(K,IYRN)   = PEXPK(K,IYRN) +   EXPNET
      ISN 0318               PIMPK(K,IYRN)   = PIMPK(K,IYRN) +   EXPNET * FI(J)
      ISN 0319               ALWPK(K,IYRN)   = ALWPK(K,IYRN) +   ENINET
                             C
      ISN 0320               PEXPA           = PEXPA + EXPNET
      ISN 0321               PIMPA           = PIMPA + EXPNET * FI(J)
      ISN 0322               ENIA            = ENIA  + ENINET
                             C
      ISN 0323     5727      CONTINUE
                             C
                             C DUMP DETAILED IMPACT
                             C
009)                         C
015)                         C
      ISN 0324               IF(IDUMP(11).EQ.1)  CALL PDUMP(IRN,IYRN,4,J,J,4,ID,ID,4,
```

```
                D11  2      EXPINC(1,1),EXPINC(16,6),5,EXPDEC(1,1),EXPDEC(16,6),5,
                D11  1      PMYLMP(1,1),PMYLMP(16,6),5,PMYEXP(1,1),PMYEXP(16,6),5)
                            C
     ISN 0326   5520         CONTINUE
                            C
                            C
024)                        C
     ISN 0327               PEXPJ(J,IYRN)    = PEXPA
     ISN 0328               PIMPJ(J,IYRN)    = PIMPA
     ISN 0329               ALMPJ(J,IYRN)    = ENIA
     ISN 0330               PEXP             = PEXP  + PEXPA
     ISN 0331               PIMP             = PIMP  + PIMPA
     ISN 0332               ENI              = ENI   + ENIA
     ISN 0333               POPOP            = POPOP + PGF(JPGF(J)) * POP(J)
                            C
     ISN 0334   5510      CONTINUE
                          C
                          C
                          C
                          C SECTION 5.8.1   STORE OVERALL IMPACT DATA TO BE PRINTED AT THE END
                          C                 OF THE TIMESTREAM.
                          C
                          C
032)
     ISN 0335             TOPOP(IYRN)  = POPOP
     ISN 0336             POPEXP(IYRN) = PEXP
     ISN 0337             POPIMP(IYRN) = PIMP
     ISN 0338             ALMPOP(IYRN) = ENI
                          C
C--------
     ISN 0339   5000    CONTINUE
                        C
                        C SECTION 6.0   END OF TIMESTREAM, PRINT OUT STORED DATA
                        C
                        C
                        C DUMP ANNUAL METRICS
                        C
                        C
044)
     ISN 0340           IF(IDUMP(12).EQ.1)   CALL PDUMP(POPEXP(1),STOPGF(9,9),5,
                D12   2ENIDB(2,1),EXPDB(16,9),5)
                        C
     ISN 0342           IF(IPRINT(5).EQ.1)  CALL  PRINT5
     ISN 0344           IF(ICONT(1).EQ.1)         GO TO 6001
     ISN 0346              CALL  PRINT6(IPLOT,IPRINT(6))
     ISN 0347              IF(IPRINT(7).EQ.1)  CALL  PRINT7
     ISN 0349              IF(IPRINT(8).EQ.1)  CALL  PRINT8
     ISN 0351              IF(IPRINT(9).EQ.1)  CALL  PRINT9(1)
     ISN 0353              IF(IPRINT(9).EQ.1)  CALL  PRINT9(2)
     ISN 0355              IF(IPRINT(10).EQ.1) CALL  PRNT10
C--------
     ISN 0357   6001    IF(IPRINT(11).EQ.1) CALL  PRNT11
                        C
                        C SECTION 7.0   READ IN ANOTHER REGULATION SCENARIO
                        C
                        C
     ISN 0359   7000    STOP
                        C
                        C SECTION 8.0  DEBUG PACKETS
                        C
```

```
                      C       DEBUG SUBCHK
                      C       AT 13
                      C       DISPLAY N16DB
                      C       TRACE ON
045)                  C
     ISN 0360         END
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*     SOURCE STATEMENTS =     359, PROGRAM SIZE =    13252, SUBPROGRAM NAME = MAIN
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******
                                                                    14K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL STATEMENT NUMBERS											
A	0003											
I	0002	0004	0004	0006	0008	0010	0010	0012	0012	0014	0014	0016
A1	0003											
A2	0003											
B1	0003											
B2	0003											
FI	0003											
II	0003											
IT	0003											
ADT	0003											
ALC	0003											
ALG	0003											
CZD	0003											
DBK	0003											
MYR	0003	0008	0010	0010	0010	0012	0012	0012	0014	0014	0014	0016
PGF	0003											
VAF	0003											
VBD	0002	0004	0008	0010	0012	0014	0016					
VGF	0003											
AREA	0003											
CON0	0003											
CON2	0003											
IVAF	0003											
IVBD	0003											
IVGF	0003											
JPGF	0003											
LANE	0003											
LIFE	0003											
MYRE	0003											
PGF0	0003											
RENU	0003											
VINC	0003	0010										
VPOP	0003											
XINC	0003	0012										
YINC	0003	0014										
BVFOP	0003											
JMYLE	0003											
MYREF	0003											
VBD74	0003	0004	0008	0010								
VBD77	0003	0012										
VBD85	0003	0014										
VBD90	0003	0016										
WIDTH	0003											
XKINK	0003											
FPAREA	0003											
FPRGAD	0003											
IEQAGL	0003											

/ STRUCTURED SOURCE LISTING /

```
(001  ISN 0002            FUNCTION VBD(I)                                                    00062700
                          CX VBD     LAST UPDATE=      10/16/78 17:37:17                     00062710
                          C  THIS FUNCTION  COMPUTES THE CURRENT VEHICLE BREAKDOWN           00062800.
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),    00063100
                    B1    2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                     00063110
                    B1    3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                     00063120
                    B1    4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                          00063130
                    B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                      00063140
                    B1    6XKINK,A1,A2,B1,B2,ALO,CON0,CON2,IVAF(14),                         00063150
                    B1    7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),                   00063160
                    B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,II                     00063170
                          C                                                                  00063200
      ISN 0004            IF(I.GT.7)                    VBD = VBD74(I)                       00063300
      ISN 0006            IF(I.GT.7)                    RETURN                               00063400
C-------
      ISN 0008            IF(MYR.LT.1974)               VBD = VBD74(I)                       00063440
      ISN 0010            IF(MYR.GE.1974.AND.MYR.LT.1977) VBD = VBD74(I)+YINC(I)*(MYR-1974)  00063500
      ISN 0012            IF(MYR.GE.1977.AND.MYR.LT.1985) VBD = VBD77(I)+XINC(I)*(MYR-1977)  00063600
      ISN 0014            IF(MYR.GE.1985.AND.MYR.LT.1990) VBD = VBD85(I)+YINC(I)*(MYR-1985)  00063700
      ISN 0016            IF(MYR.GE.1990)               VBD = VBD90(I)                       00063800
      ISN 0018            RETURN                                                             00063900
 001)                     C
      ISN 0019            END                                                                00064000
```

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*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 18, PROGRAM SIZE = 526, SUBPROGRAM NAME = VBD

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 122K BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																		
A	0004																		
I	0004	0006	0008	0012	0014	0014	0014	0015	0018	0018	0023	0025	0027	0027	0027	0029	0029	0029	0029
	0032	0034	0036	0042	0043	0045	0046	0050	0052	0052	0052	0052							
A1	0004																		
A2	0004																		
B1	0004																		
B2	0004																		
FI	0004																		
IT	0004																		
XX	0018	0027	0029	0031	0032														
ADT	0004																		
ALC	0004																		
ALO	0004																		
CZD	0004																		
DBK	0004																		
IYR	0007	0008	0017	0018	0023	0027	0032	0048	0050	0052	0052								
NAT	0005																		
NHT	0005																		
NSH	0005																		
NVT	0005	0012	0042																
PGF	0004																		
SUM	0013	0031	0031	0034	0036	0037													
VAF	0004	0027	0029	0052															
VBD	0027	0029																	
VGF	0004	0029																	
AREA	0004																		
CUNO	0004																		
CON2	0004																		
ODBA	0005																		
IAGE	0022	0023	0024	0025	0027	0029	0049	0050	0050	0052	0052								
IVAF	0004	0014	0025	0027	0029	0052	0052												
IVBD	0004	0014	0018	0023	0027	0029	0043	0045	0050	0052	0052								
IVGF	0004	0029																	
IYES	0032																		
IYRA	0002	0010	0018	0020	0034	0036	0039	0040											
JPGF	0004																		
LAGE	0004																		
LIFE	0004	0014	0025	0052															
MAXO	0014																		
MILE	0005																		
MYRB	0005	0027	0029	0029	0047	0049													
MYRC	0010	0014	0016	0022															
MYRE	0004	0014	0015	0046															
NIDD	0005																		
NLEV	0005																		
NYRN	0005																		
PGFU	0004																		
REMU	0004	0018	0027	0029	0052	0052													
VINC	0004																		

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS								
VPOP	0004	0008	0032							
VTOT	0005	0036								
XINC	0004									
YINC	0004									
ALREG	0005									
ALRPJ	0005									
ALRPK	0005									
BVPOP	0004	0034								
ENIDB	0005									
EXPDB	0005									
GVTOT	0005	0039								
IFLAG	0003	0003	0043	0045						
IYBAS	0029									
IYREF	0017	0029	0048							
JMYLE	0004									
MODYR	0004	0016	0017	0022	0027	0029	0029	0047	0048	0049
MYOLD	0015	0016	0046	0047						
MYREF	0004	0014								
MYREG	0005									
N16DB	0005									
PEXPJ	0005									
PEXPK	0005									
PIMPJ	0005									
PIMPK	0005									
TOPOP	0005									
VBD74	0004	0018								
VBD77	0004									
VBD85	0004									
VBD90	0004									
WIDTH	0004									
XKINK	0004									
ALRPOP	0005									
BIGSUM	0011	0037	0037	0039						
FPAREA	0004									
FPROAD	0004									
IEQAGE	0004	0023	0050							
ITABLE	0005									
MYRNET	0005	0010								
POPDEN	0005									
POPEXP	0005									
POPIMP	0005									
POPLTN	0005									
STOPGF	0005									
VEHPOP	0002									

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES		
1	0012			
2	0052			
2000	0009	0006	0007	
2101	0038	0012		
2102	0033	0016	0025	
2103	0031	0020		
2104	0022			

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
2000	0055	0042 0043
2201	0054	0047

/ STRUCTURED SOURCE LISTING /

```
(007  ISN 0002            SUBROUTINE VEMPOP(IYRN)                                                  00091800
                          C                                                                        00091820
                          C COMPUTES THE VEHICLE POPULATION FROM REMO AND GROWTH AND               00091840
                          C                                  ATTRITION FACTORS.                    00091860
                          C                                                                        00091880
                          C                                                                        00092000
      ISN 0003            INTEGER IFLAG(6)/6*0/                                                    00092100
      ISN 0004            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),          00092200
                   B1     2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                           00092300
                   B1     3A(2,3),DBK(3),CZD(4,9,6),ALC(9),FI(9),PGF(5),                           00092400
                   B1     4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                                00092500
                   B1     5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                            00092600
                   B1     6XKINK,A1,A2,B1,B2,AL0,CON0,CON2,IVAF(14),                               00092700
                   B1     7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),                         00092800
                   B1     8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MODYR,IT,I                          00092900
      ISN 0005              COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),          00093000
                   B2     2POPEXP(9),POPIMP(9),ALWPOP(9),TOPOP(9),                                 00093100
                   B2     3PIMPK(6,9),PEXPK(6,9),ALWPK(6,9),PIMPJ(9,9),                            00093200
                   B2     4PEXPJ(9,9),ALWPJ(9,9),POPLTN(4,9),STOPGF(9,9),                          00093300
                   B2     5POPDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),                            00093400
                   B2     6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),                                 00093500
                   B2     7MYRNET(9),MYRB,MYRN,NVT,NAT,NHT,NSK,N16DB,                              00093600
                   B2     8ITABLE                                                                  00093700
                          C                                                                        00093710
      ISN 0006            DO 2000 I=1,14                                                           00093720
(006  ISN 0007            DO 2000 IYR=1,26                                                         00093730
                          C                                                                        00093740
(003  ISN 0008            VPOP(I,IYR) = 0.0                                                        00093750
                          C                                                                        00093760
      ISN 0009    2000    CONTINUE                                                                 00093770
                          C
 005)                     C
 006)                     C                                                                        00093800
      ISN 0010            MYRC = MYRNET(IYRN)                                                      00093900
      ISN 0011            BIGSUM =  0.0E0                                                          00093920
                          C                                                                        00094000
      ISN 0012    1       DO 2101 I      = 1,NVT                                                   00094040
                          C                                                                        00094100
(005  ISN 0013            SUM =  0.0E0                                                             00094200
      ISN 0014            MYRE(I) = MAXO(MYRC - LIFE(IVAF(I)) + 1,MYREF(IVBD(I)))                  00094300
      ISN 0015            MYOLD = MYRE(I)                                                          00094340
                          C                                                                        00094400
      ISN 0016            DO 2102 MODYR  = MYOLD,MYRC                                              00094440
                          C                                                                        00094500
(002  ISN 0017            IYR = IYREF(MODYR)                                                       00094600
      ISN 0018            IF(IYRN.EQ.1)   XX = REMO(IVBD(I),IYR) * VBD74(I)                        00094700
      ISN 0020            IF(IYRN.EQ.1)   GOTO 2103                                                00094800
                          C                                                                        00094900
                          C  THE FOLLOWING IS THE MAIN PART OF THE SUBROUTINE                      00095000
                          C                                                                        00095100
      ISN 0022    2104      IAGE = MYRC - MODYR + 1
```

```
      ISN 0023                IF(IYR.EQ.1)IAGE = IAGE+IEDAGE(IVBD(I))                                  00095200
      ISN 0025                IF(IAGE.GT.LIFE(IVAF(I)))GO TO 2102                                      00095300
      ISN 0027                IF(MODYR.LE.MYRB)    XX = REMO(IVBD(I),IYR) * VBD(I) *                   00095400
                         *    VAF(IVAF(I),IAGE)                                                        00095410
      ISN 0029                IF(MODYR.GT.MYRB)    XX = REMO(IVBD(I),IYREF(MYRB)) * VBD(I)             00095500
                         *    * VAF(IVAF(I),IAGE) * VGF(IYBAS(MODYR),IVGF(I))                          00095600
                              C                                                                        00095700
                              C CONTINUE COMPUTATION; GOTO DESTINATION FOR BASELINE YEAR               00095800
                              C                                                                        00095900
C--------
      ISN 0031      2103      SUM = SUM + XX                                                           00096000
      ISN 0032                VPOP(I,IYES(IYR)) = XX                                                   00096200
                              C                                                                        00096240
C--------
      ISN 0033      2102    CONTINUE                                                                 00096300
                            C                                                                        00096340
 002)
      ISN 0034              IF(IYRN.EQ.1)    BVPOP(I) = SUM                                            00096350
      ISN 0036              VTOT(I,IYRN) = SUM                                                       00096400
      ISN 0037              BIGSUM = BIGSUM + SUM                                                    00096500
                            C                                                                        00096540
      ISN 0038      2101    CONTINUE                                                                 00096600
                            C                                                                        00096640
 005)
                            C
      ISN 0039              GVTOT(IYRN) = BIGSUM                                                     00096700
      ISN 0040              IF(IYRN.NE.1) RETURN                                                     00096800
                            C                                                                        00096900
                            C SECTION 2.2  BACKGROWN VEHICLE POPULATION IN EACH VBD GROUP            00097000
                            C                                                                        00097100
      ISN 0042              DO 2200 I       = 1,NVT                                                  00097200
                            C                                                                        00097240
(004  ISN 0043              IF(IFLAG(IVBD(I)).EQ.1)GO TO 2200                                        00097300
      ISN 0045                 IFLAG(IVBD(I))=1                                                      00097400
                               C                                                                     00097480
                               C IF IFLAG =1, REMO HAS ALREADY BEEN BACKGROWN                        00097500
                               C                                                                     00097520
      ISN 0046                 MYOLD=MYRE(I)                                                         00097600
                               C                                                                     00097640
      ISN 0047                 DO 2201 MODYR   = MYOLD,MYRB                                          00097700
                               C                                                                     00097740
(001  ISN 0048                 IYR = IYREF(MODYR)                                                    00097800
      ISN 0049                 IAGE = MYRB - MODYR + 1                                               00097900
      ISN 0050                 IF(IYR.EQ.1)IAGE = IAGE + IEDAGE(IVBD(I))                             00098000
      ISN 0052      2          IF(IAGE.LE.LIFE(IVAF(I)))                                             00098100
                         C     REMO(IVBD(I),IYR) = REMO(IVBD(I),IYR)/VAF(IVAF(I),IAGE)               00098200
                               C                                                                     00098240
      ISN 0054      2201       CONTINUE                                                              00098300
 001)
                               C
      ISN 0055      2200    CONTINUE                                                                 00098400
                            C                                                                        00098440
 004)
                            C
      ISN 0056              RETURN                                                                   00098500
 007)
                            C
      ISN 0057              END                                                                      00098600
```


*OPTIO[illegible]N EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(M[illegible]) AUTODBL(NONE)

```
LEVEL [illegible] (SEPT 76)        VEHPOP        OS/360  FORTRAN [illegible]XTENDED          DATE 80.273/19.21.13        PAGE [illegible]
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*     SOURCE STATEMENTS =      56, PROGRAM SIZE =     1410, SUBPROGRAM NAME =VEHPOP
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                          110K BYTES OF CORE NOT USED
```

```
 LEVEL 2.2  (SEPT 70)   XMINUS          OS/360  FORTRAN H EXTENDED          DATE 80.273/19.21.47      PAGE   1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                          *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
SYMBOL   INTERNAL STATEMENT NUMBERS
AL1      0002  0003  0005  0005
AL2      0002  0003  0005  0005
ALOG10   0005
XMINUS   0002  0003  0005


                                        / STRUCTURED SOURCE LISTING /
(001  ISN 0002          FUNCTION XMINUS(AL1,AL2)                                          00090200
                        C SUBTRACTS TWO NOISE LEVELS                                      00090300
                        C     AL1 MUST BE GREATER THAN AL2.                               00090400
      ISN 0003          IF(AL1.LE.AL2)XMINUS=0.                                           00090500
      ISN 0005          IF(AL1.GT.AL2)XMINUS=10.*ALOG10(10.**(AL1/10.)-10**(AL2/10.))     00090600
      ISN 0007          RETURN                                                            00090700
001)                    C                                                                 00090800
      ISN 0008          END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       7, PROGRAM SIZE =      396, SUBPROGRAM NAME =XMINUS

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                          126K BYTES OF CORE NOT USED
```

C.2 Common Modules

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS															
I	0014	0015															
M	0013	0015	0038	0039	0040	0040	0041	0041	0041								
ISP	0041	0041	0041														
NAT	0005																
NMT	0005																
NSR	0005																
NVT	0005																
COMP	0003	0011	0031	0033													
DDBA	0005																
DECK	0006	0027															
IRYR	0019	0021	0023	0023	0039	0053											
IVEH	0012	0015	0016	0034	0034	0035	0037	0037	0039	0039	0040	0040	0041	0041	0044	0056	0056
KRET	0002	0007	0063														
MILE	0005																
MYRB	0005																
NIDD	0005																
NLEV	0005	0009	0040	0040													
NYRN	0005																
VTOT	0005																
ZERO	0008																
ALREG	0005	0008	0041														
ALWPJ	0005																
ALWPK	0005																
BLANK	0006	0011															
ENIDB	0005																
EXPDB	0005																
GVTOT	0005																
IHCNT	0004	0010	0037	0037	0039	0041	0056										
MYREG	0005	0015	0039														
N16DB	0005																
PEXPJ	0005																
PEXPK	0005																
PIMPJ	0005																
PIMPK	0005																
TOPOP	0005																
ZERDI	0009	0010															
ALWPOP	0005																
ITABLE	0005																
MYRNET	0005																
NLOKNM	0004	0025	0029	0029													
NLOKNR	0004	0019	0021	0029	0029	0031	0033	0047	0050	0053							
POPDEN	0005																
POPEXP	0005																
POPIMP	0005																
POPLIN	0005																
PROMPT	0025	0027															
SERESC	0002																
$STOPGF	0005																

*****FORTRAN CROSS REFERENCE LISTING*****

LABEL	DEFINED	REFERENCES
1	0026	0025
2	0025	0027 0029
3	0020	0019
4	0022	0021
5	0018	0017
9	0037	0031
11	0040	0038
12	0042	0041
13	0019	0043
14	0044	0019
15	0047	0025
16	0048	0047
17	0050	0035
18	0051	0050
19	0015	0012 0013 0014
20	0053	0023
21	0054	0053
22	0056	0041
23	0057	0056
24	0059	0044
25	0060	0059
30	0061	0049 0052 0055 0058
31	0062	0061

C-99

/ STRUCTURED SOURCE LISTING /

```
(006  ISN 0002            SUBROUTINE SERESC (KRET)
                          C THIS SUBROUTINE SELECTS THE PROPER NOISE LEVELS FROM UNIT 8 (NOISE
                          C  LEVEL DICTIONARY) AS DIRECTED BY CONTENTS OF UNIT 2.
      ISN 0003            INTEGER COMP
      ISN 0004            DIMENSION IRCNT(14), NLOKNM(2), NLOKNR(2)
      ISN 0005            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),DDBA(16),
                         2POPEXP(9),POPIMP(9),ALNPOP(9),TOPOP(9),
                         3PIMPK(6,9),PEXPK(6,9),ALNPK(6,9),PIMPJ(9,9),
                         4PEXPJ(9,9),ALNPJ(9,9),POPLIN(4,9),BTOPGP(9,9),
                         5PURDEN(4,9),ENIDB(16,9),EXPDB(16,9),NIDD(9),
                         6MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),
                         7MYRNET(9),MYR8,NYRN,NVT,NAT,NHT,NSR,N16DB,
                         8ITABLE
      ISN 0006            DATA DECK, BLANK /4H*DK , 4H    /
                          C INITIALIZATION
      ISN 0007            KRET=0
      ISN 0008            CALL ZERO (ALREG,1400)
      ISN 0009            CALL ZEROI(NLEV,56)
      ISN 0010            CALL ZEROI(IRCNT,14)
      ISN 0011            COMP = BLANK
      ISN 0012            DO 19 IVEH=1,14
(005  ISN 0013            DO 19 M=1,4
(003  ISN 0014            DO 19 I=1,6
(001  ISN 0015      19    MYREG(I,M,IVEH)=2014
 001)                     C
 003)                     C
 005)                     C
      ISN 0016            IVEH=0
      ISN 0017            WRITE (6,5)
      ISN 0018       5    FORMAT ('1    REGULATION INSTRUCTION FILE:',//)
```

```
                      C GET NEXT LINE OF INPUT SCENARIO  SPEC FILE
(004  ISN 0019    13  READ(2,3,END=14) IRYR,NLDKNR
      ISN 0020    3   FORMAT(1X,I4,2A3)
      ISN 0021        WRITE(6,4) IRYR,NLDKNR
      ISN 0022    4   FORMAT(' INSTRUCTION ON UNIT 2: Y',I4,2A3)
      ISN 0023        IF(IRYR.LT.1957.OR.IRYR.GT.2014) GO TO 20
                      C SEARCH NLDICT FILE
      ISN 0025    2       READ(8,1,END=15) PROMPT,NLDKN4
      ISN 0026    1       FORMAT(A4,2A3)
      ISN 0027            IF(PROMPT.NE.DECK  ) GO TO 2
      ISN 0029               IF (NLDKNR(1) .NE. NLDKNM(1) .OR.
                1            NLDKNR(2) .NE. NLDKNM(2))  GOTO 2
      ISN 0031               IF (COMP .EQ. NLDKNR(1) ) GOTO 9
      ISN 0033                  COMP = NLDKNR(1)
      ISN 0034                  IVEH=IVEH+1
      ISN 0035                  IF(IVEH.GT.14) GO TO 17
      ISN 0037    9             IRCNT(IVEH)=IRCNT(IVEH)+1
      ISN 0038                  DO 11 M=1,4
(002  ISN 0039                  MYREG(IRCNT(IVEH),M,IVEH)=IRYR
      ISN 0040    11            NLEV(IVEH,M)=NLEV(IVEH,M)+1
 002)
      ISN 0041                  READ(8,12,END=  22 )((ALREG(IRCNT(IVEH),ISP,M,IVEH),ISP=1,5),M=1,4
                C           )
 004)                       C
      ISN 0042    12            FORMAT(1X,F5.1,1X,F5.1,1X,F5.1,1X,F5.1,1X,F5.1,1X)
      ISN 0043                  GO TO 13
                                C
      ISN 0044    14      IF(IVEH.LT.1)GOTO 24
      ISN 0046               RETURN
                             C
C--------
      ISN 0047    15         WRITE(6,16) NLDKNR
      ISN 0048    16         FORMAT('0NO MATCH FOR ',2A3,' IN NLDICT.')
      ISN 0049               GO TO 30
C--------
      ISN 0050    17               WRITE(6,18) NLDKNR
      ISN 0051    18               FORMAT('0TOO MANY VEHICLES SPECIFIED (',2A3,')')
      ISN 0052                     GO TO 30
C--------
      ISN 0053   20       WRITE(6,21) IRYR,NLDK NR
      ISN 0054    21      FORMAT('0ILLEGAL REGULATION YEAR',I6)
      ISN 0055            GOTO 30
C--------
      ISN 0056    22           WRITE(6,23) IVEH, IRCNT(IVEH)
      ISN 0057    23           FORMAT('0PREMATURE E-O-F ON UNIT 8, VEHICLE ',I3,
                4           ', REGULATION COUNTER ',I4)
      ISN 0058                 GOTO 30
C--------
      ISN 0059    24      WRITE(6,25)
      ISN 0060    25      FORMAT(' NO INSTRUCTIONS ON UNIT 2.')
      ISN 0061    30  WRITE(6,31)
      ISN 0062    31  FORMAT('0ABOVE ERROR IN SERESC.',30('*'))
      ISN 0063        KRET=-1
      ISN 0064        RETURN
 006)                 C
      ISN 0065        END
```


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```
LEVEL  2  (SEPT 76)          SERESC          OS/360  FORTRAN  EXTENDED          DATE 80.273/19.22.17       PAGE
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*      SOURCE STATEMENTS =       64, PROGRAM SIZE =      1818, SUBPROGRAM NAME =SERESC
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                    110K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																
I	0014	0015															
M	0013	0015	0038	0039	0040	0040	0041	0041	0041								
ISP	0041	0041	0041														
NAT	0005																
NMT	0005																
NSR	0005																
NVT	0005																
POP	0005																
COMP	0003	0011	0031	0033													
DECK	0006	0027															
INCR	0005																
IRYN	0019	0021	0023	0023	0039	0053											
IVEH	0012	0015	0016	0034	0034	0035	0037	0037	0039	0039	0040	0040	0041	0041	0044	0056	0056
KRET	0002	0007	0063														
MILE	0005																
MYRB	0005																
MYRN	0005																
NIDD	0005																
NLEV	0005	0009	0040	0040													
NYRN	0005																
VIOT	0005																
ZERO	0008																
ALREG	0005	0008	0041														
BLANK	0006	0011															
GVTOT	0005																
IRCNT	0004	0010	0037	0037	0039	0041	0056										
MYREG	0005	0015	0039														
ZEROI	0009	0010															
MYRVET	0005																
NLDKVM	0004	0025	0029	0029													
NLDKVR	0004	0019	0021	0029	0029	0031	0033	0047	0050	0053							
POPDEN	0005																
POPLTN	0005																
PROMPT	0025	0027															
SERESC	0002																
STOPGF	0005																
TOTPOP	0005																

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1	0026	0025
2	0025	0027 0029
3	0020	0019
4	0022	0021
5	0018	0017
9	0037	0031
11	0040	0038
12	0042	0041

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
13	0019	0043
14	0044	0019
15	0047	0025
16	0048	0047
17	0050	0035
18	0051	0050
19	0015	0012 0013 0014
20	0053	0023
21	0054	0053
22	0056	0041
23	0057	0056
24	0059	0044
25	0060	0059
30	0061	0049 0052 0055 0058
31	0062	0061

/ STRUCTURED SOURCE LISTING /

```
(006  ISN 0002            SUBROUTINE SERESC (KRET)
                          C THIS SUBROUTINE SELECTS THE PROPER NOISE LEVELS FROM UNIT 8 (NOISE
                          C  LEVEL1 DICTIONARY) AS DIRECTED BY CONTENTS OF UNIT 2.
      ISN 0003            INTEGER COMP
      ISN 0004            DIMENSION IRCNT(14), NLDKNM(2), NLDKNR(2)
      ISN 0005            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                B2        2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                B2        3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                B2        4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NMT,NSR
      ISN 0006            DATA DECK, BLANK /4H*DK , 4H    /
                          C INITIALIZATION
      ISN 0007            KRET=0
      ISN 0008            CALL ZERO (ALREG,1400)
      ISN 0009            CALL ZEROI(NLEV,56)
      ISN 0010            CALL ZEROI(IRCNT,14)
      ISN 0011            COMP = BLANK
      ISN 0012            DO 19 IVEH=1,14
(005  ISN 0013            DO 19 M=1,4
(003  ISN 0014            DO 19 I=1,6
(001  ISN 0015      19    MYREG(I,M,IVEH)=2014
 001)                     C
 003)                     C
 005)                     C
      ISN 0016            IVEH=0
      ISN 0017            WRITE(6,5)
      ISN 0018       5    FORMAT ('1    REGULATION INSTRUCTIONS:',//)
                          C GET NEXT LINE OF INPUT SENARIO   SPEC FILE
(004  ISN 0019      13    READ(2,3,END=14) IRYR,NLDKNR
      ISN 0020      3     FORMAT(1X,I4,2A3)
      ISN 0021            WRITE(6,4) IRYR,NLDKNR
      ISN 0022      4     FORMAT(' INSTRUCTION ON UNIT 2: Y',I4,2A3)
      ISN 0023            IF(IRYR.LT.1957.OR.IRYR.GT.2014) GO TO 20
                          C SEARCH NLDICT FILE
      ISN 0025      2           READ(8,1,END=15) PROMPT,NLDKNM
      ISN 0026    1             FORMAT(A4,2A3)
      ISN 0027                  IF(PROMPT.NE.DECK  ) GO TO 2
      ISN 0029                     IF (NLDKNM(1) .NE. NLDKNM(1) .OR.
```

```
                     1          NLDKNR(2) .NE. NLDKNM(2))  GOTO 2
      ISN 0031                  IF (COMP .EQ. NLDKNR(1) ) GOTO 9
      ISN 0033                     COMP = NLDKNR(1)
      ISN 0034                     IVEH=IVEH+1
      ISN 0035                     IF(IVEH.GT.14) GO TO 17
      ISN 0037       9          IRCNT(IVEH)=IRCNT(IVEH)+1
      ISN 0038                  DO 11 M=1,4
(002  ISN 0039                  MYREG(IRCNT(IVEH),M,IVEH)=IRYR
      ISN 0040       11         NLEV(IVEH,M)=NLEV(IVEH,M)+1
 002)                           C
      ISN 0041                  READ(8,12,END=  22 )((ALREG(IRCNT(IVEH),ISP,M,IVEH),ISP=1,5),M=1,4
                        C       )
 004)                           C
      ISN 0042       12         FORMAT(1X,F5.1,1X,F5.1,1X,F5.1,1X,F5.1,1X,F5.1,1X,F5.1,1X)
      ISN 0043                  GO TO 13
                                C
      ISN 0044       14      IF(IVEH.LT.1)GOTO 24
      ISN 0046                  RETURN
                                C
C--------
      ISN 0047       15         WRITE(6,16) NLDKNR
      ISN 0048       16         FORMAT('0NO MATCH FOR ',2A3,' IN NLDICT.')
      ISN 0049                  GO TO 30
C--------
      ISN 0050       17              WRITE(6,18) NLDKNR
      ISN 0051       18              FORMAT('0TOO MANY VEHICLES SPECIFIED (',2A3,')')
      ISN 0052                       GO TO 30
C--------
      ISN 0053       20      WRITE(6,21) IRYR,NLDK NR
      ISN 0054       21      FORMAT('0ILLEGAL REGULATION YEAR',I6)
      ISN 0055               GOTO 30
C--------
      ISN 0056       22              WRITE(6,23) IVEH, IRCNT(IVEH)
      ISN 0057       23              FORMAT('0PREMATURE E-O-F ON UNIT 8, VEHICLE ',I3,
                        4            ', REGULATION COUNTER ',I4)
      ISN 0058                       GOTO 30
C--------
      ISN 0059       24      WRITE(6,25)
      ISN 0060       25      FORMAT(' NO INSTRUCTIONS ON UNIT 2.')
      ISN 0061       30   WRITE(6,31)
      ISN 0062       31   FORMAT('0ABOVE ERROR IN SERESC.',30('*'))
      ISN 0063            KRET=-1
      ISN 0064            RETURN
 006)                     C
      ISN 0065            END
```

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 64, PROGRAM SIZE = 1606, SUBPROGRAM NAME =SERESC

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 110K BYTES OF CORE NOT USED

```
LEVEL  2  (SEPT 76)    ZERO              OS/360  FORTRAN  EXTENDED          DATE 80.273/19.24.08        PAGE   1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
J       0004  0005
N       0002  0003  0004
R       0002  0003  0005
ZERO    0002


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 LABEL   DEFINED   REFERENCES
    1    0005      0004


                                                  / STRUCTURED SOURCE LISTING /
(002  ISN 0002              SUBROUTINE ZERO (R, N)
      ISN 0003              DIMENSION R(N)
      ISN 0004              DO 1 J=1,N
(001  ISN 0005        1     R(J)=0.
 001)                       C
      ISN 0006              RETURN
 002)                       C
      ISN 0007              END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       6, PROGRAM SIZE =      268, SUBPROGRAM NAME =  ZERO

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                          126K BYTES OF CORE NOT USED
```

```
LEVEL 2.2  (SEPT 76)      ZEROI          OS/360  FORTRAN H EXTENDED          DATE 80.273/19.24.56        PAGE   1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
I       0002  0003  0005
J       0004  0005
N       0002  0003  0004
ZEROI   0002


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 LABEL   DEFINED   REFERENCES
    1    0005      0004


                                          / STRUCTURED SOURCE LISTING /
(002  ISN 0002            SUBROUTINE ZEROI (I, N)
      ISN 0003            DIMENSION I(N)
      ISN 0004            DO 1 J=1,N
(001  ISN 0005      1     I(J)=0
 001)                     C
      ISN 0006            RETURN
 002)                     C
      ISN 0007            END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       6, PROGRAM SIZE =      268, SUBPROGRAM NAME = ZEROI

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                        126K BYTES OF CORE NOT USED
```

C.3 SEM Modules

```
REQUESTED OPTIONS: XREF,OPT(2),GOSTMT,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   SOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP NOFORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

ISN 0002            BLOCK DATA
                  C BELONGS TO SINGLE EVENT MODEL
                  C
                  C
                  C  UNNAMED COMMON
                  C
ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                  B1   2            VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                  B1   3            VML(14,4,5),A(2,3),OBK(3),CZD(9,6),PGF(5),
                  B1   4            PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                  B1   5            AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                  B1   6            X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
                  B1   7            MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),
                  B1   8            JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
                  C
                  C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                  C
ISN 0004            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                  B2   2            POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                  B2   3            MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                  B2   4            NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                  C
                  C END PRINT  COMMON BLOCK
                  C
ISN 0005            COMMON /BIG003/ GAMM(6,9),V(5),EDGE(4,9),EDGEPZ(4,9,6),
                  B3   2            WDTHPZ(4,9),FLOWIX(14,4,5),PERCNT(4,2,4),
                  B3   3            REPZ(4,9,6,4),REDGE(4,9,6,4),
                  B3   4            JFLO(9),KFLO(6),KPER(6),IPER(14)
ISN 0006            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                  B4   2            KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                  B4   3            IPLOT(7),ITABLE,ITABS,NNTABS
                  C
ISN 0007            COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),
                  B5   2            PLDEN(4,9,6,4,5),SEPROB(4,9,6,6,5),
                  B5   3            RDREDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLPSI(9,6,4),
                  B5   4            METRIC(20,7,2),DJKLEV(9,6,4,2),DLLEV(5,2),
                  B5   5            PACT(5,2),FRTN(2),COC(7),EVPROB(14,9,6),
                  B5   6            FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),
                  B5   7            IFIMP(7),JCOC(7),INOUT(7),KOM(7),NADB,NRDB
                  C
ISN 0008            COMMON/BIG006/PNORM(3,2,4),ACEV(6,9),IYRN,IFM,
                  B6   1            ACCM(20,2),VNTDAY,VARWIT,IEVB(6,9),KS,J,
                  B6   2            VNTDB(15,11,5,9),ACLMP(15,21),KSJEVP,IM56
                  C
ISN 0009            DATA NADB,NRDB/20,17/
ISN 0010            DATA ADBL   /130.,125.,120.,115.,110.,105.,100.,95.,90.,85.,80.,
                   *          75.,70.,65.,60.,55.,50.,45.,40.,35.,30./
ISN 0011            DATA AVDBL  /127.5,122.5,117.5,112.5,107.5,102.5,97.5,92.5,87.5,
                   *        82.5,77.5,72.5,67.5,62.5,57.5,52.5,47.5,42.5,37.5,32.5/
ISN 0012            DATA RDBL   /0.,-5.,-10.,-15.,-20.,-25.,-30.,-35.,-40.,-45.,
                   *           -50.,-55.,-60.,-65.,-70.,-75.,-80.,-85./
ISN 0013            DATA   RDBEDG  /1728*0.0/,    RDBCUT  /1728*0.0/,
                  DATA *   PLDEN   /4320*0.0/,    SEPROB  /6480*0.0/,
```

```
                DATA *        REPZ /864*0.0/,    REDGE /864*0.0/
ISN 0014              DATA IFIMP  /1,2,3,4,5,5,4/ ,
                DATA *      KUP    /1,1,2,2,1,2,2/,
                DATA *      INOUT  /1,1,1,2,2,2,2/,
                DATA *      COC    /55.7,55.7,45.,55.,30.,30.,55./,
                DATA *      JCOC   /19,16,17,15,20,20,15/,
                DATA *      PACT   /0.73770,0.00670,0.00490,0.04340,1.0000,
                DATA *              0.12900,0.00000,0.00125,0.83570,1.00000/,
                DATA *      IPACT  /4,4,1,2,5,5,3/
                C
                C AREA AND POPULATION DATA.
                C
                C NIDD(J) IS THE NUMBER OF VARIABLE DENSITY REGIONS IN AREA TYPE J
                C
ISN 0015              DATA NIDD/3,4,4,3,3,3,4,4,1/
                C
                C POPULATION DENSITIES, NUMBER OF PEOPLE PER SQ. MILE.
                C
ISN 0016              DATA  POPDEN /
                C        ID=      1          2          3          4
                C     J=
                      1          41826.,   6236.8,   2583.6,       0.,
                      2          7720.6,   5264.5,   2190.4,   1307.9,
                      3          5666.7,   4174.2,   1897.4,    1156.,
                      4          7469.8,   2287.4,   1165.5,       0.,
                      5          4164.9,   2247.5,   1298.5,       0.,
                      6          3243.2,   1903.1,   1078.7,       0.,
                      7          8051.7,   3327.0,   1574.4,    693.8,
                      8          8406.8,   3944.5,   1868.3,    464.1,
                      9           18.46,       0.,       0.,       0.,      /
                C
                C
                C       PGF0=INITIAL POPULATION GROWTH FACTOR=1
                C       JPGF=SELECTOR ARRAY FOR PGF
                C
ISN 0017              DATA PGF0/5*1.E0/,JPGF/1,2,2,3,3,4,4,4,5/
                C
                C AREA DATA, SQUARE MILES
                C
ISN 0018              DATA AREA      /
                C        ID=      1          2          3          4
                C     J=
                      1          134.2E0,  3572.0E0,  8358.0E0,     0.0E0,
                      2          272.0E0,   775.0E0,  5080.0E0,  4089.0E0,
                      3           63.0E0,   488.0E0,  4426.0E0,  4584.0E0,
                      4          215.0E0,  4558.0E0,  5790.0E0,     0.0E0,
                      5          279.0E0,  1305.0E0,  5266.0E0,     0.0E0,
                      6          329.0E0,  1115.0E0,  4195.0E0,     0.0E0,
                      7           58.0E0,   896.0E0,  2230.0E0,  2769.0E0,
                      6          220.0E0,  1261.0E0,  4527.0E0,  5820.0E0,
                      9       3476938.0E0,     0.0E0,     0.0E0,     0.0E0/
                C
                C THE AREA AND ROADWAY ADJUSTMENT FACTORS FOR UNPOPULATED LAND
                C     POPULATED AREA=TOTAL AREA    *    ADJUSTMENT FACTOR
                C
ISN 0019              DATA FPAREA/
                C        J=   1     2     3     4     5     6     7     8     9
                C  ID=
```

```
                1      .646, .574, .610, .777, .713, .777, .619, .495, 1.00,
                2      .493, .579, .600, .619, .578, .664, .391, .369,  .0,
                3      .423, .437, .494, .529, .646, .670, .335, .298,  .0,
                4      .00 , .466, .495, .0  , .0  , .0  , .323, .285,  .0/
            C
ISN 0020          DATA FPROAD     /
            C        J=            1-6              7-8          9
            C   K=
                1        6*      .764,      2*      .656,      1.00,
                2        6*      .738,      2*      .679,      1.00,
                3        6*      .866,      2*      .843,      1.00,
                4        6*      .845,      2*      .849,      1.00,
                5        6*      .852,      2*      .867,      1.00,
                6        6*      .852,      2*      .867,      1.00      /
            C
            C  LOCAL CRITERIA, PROPAGATION AND INDOOR SHIFT DATA
            C
ISN 0021          DATA SHIFT/
            C
            C  ID=      1      2      3      4      1      2      3      4
            C
            C   INSIDE SHIFT
            C
            J=1-2>   -20.0, -20.0, -20.0, -20.0,     -20.0, -20.0, -15.0, -15.0,
            J=3-4>   -20.0, -20.0, -15.0, -15.0,     -20.0, -15.0, -15.0, -15.0,
            J=5-6>   -20.0, -15.0, -15.0, -15.0,     -20.0, -15.0, -15.0, -15.0,
            J=7-8>   -20.0, -20.0, -15.0, -15.0,     -20.0, -20.0, -15.0, -15.0,
            J=9  >   -15.0, -15.0, -15.0, -15.0,
            C
            C   OUTSIDE SHIFT
            C
            OUT  >       36* 0.0/
            C
            C WYLE CURVE CHOOSER
            C
ISN 0022          DATA JWYLE     /
            C        J=   1    2    3    4    5    6    7    8    9
            C  ID=
                1        1,   1,   2,   1,   2,   2,   1,   2,   3,
                2        2,   2,   2,   3,   3,   3,   2,   2,   0,
                3        2,   3,   3,   3,   3,   3,   3,   3,   0,
                4        0,   3,   3,   0,   0,   0,   3,   3,   0          /
ISN 0023          DATA A      /4.03675E1,2.09749E1,3.32193E1,2.21755E1,2*2.55082E1/
ISN 0024          DATA DBK    /2.75E1,2.E1,1.E6/
            C
            C MEANING OF VARIABLES: MYRB = BASELINE YEAR
            C                       NVT  = NUMBER OF VEHICLE TYPES
            C                       NAT  = NUMBER OF AREA TYPES
            C                       NHI  = NUMBER OF HIGHWAY TYPES
            C                       NSR  = NUMBER OF SPEED RANGES
            C
ISN 0025          DATA MYRB,NVT,NAT,NHT,NSR/
                C      1974,14 , 9 , 6 , 5       /
            C
            C    VEHICLE DATA
            C
            C
            C  MYREF = REFERENCE YEAR FOR EACH IVBD GROUP
```

```
C  IEQAGE  = EQUIVALENT AGE OF CARS LUMPED INTO REMO(I,IVBD) IN THE
C            BASELINE YEAR.
C  LIFE   = LIFE OF CARS OF GROUP IVAF, AS GIVEN BY THE NUMBER OF
C            NO-ZERO ENTRIES IN THE RELEVANT VAF TABLE.
C
ISN 0026        DATA MYREF/1958,1958,1970,1970,1970,1958/
ISN 0027        DATA LIFE/18,21,21,12/
ISN 0028        DATA IEQAGE/6,7,7,7,7,6/
C
C REMO(IVBD,IYR)=TOTAL NUMBER OF VEHICLES OF GROUP IVBD AND MODEL
C IYR WHT REFERENCE YEAR OF GROUP IVBD WHICH SURVIVES IN THE BASE
C  LINE YEAR.
C IVBD(I)=VEHICLE BREAKDOWN GROUP TO WHICH TYPE I BELONGS. THERE ARE
C  A TOTAL OF SIX VEHICLE BREAKDOWN GROUPS. GROUP 1(I=1 TO 7)ARE
C  AUTOMOBILES;GROUP 2(I=8-9) ARE TRUCKS;GROUP 3-5 ARE BUSES, AND
C  GROUP 6 CONSISTS OF MOTORCYCLES.(I=13-14)
C   DATA SOURCES FOR REMO: MVMA, BUS DOCUMENT.
C
ISN 0029        DATA REMO /
C       IVBD=1          2          3          4          5          6
C IYREF=
     1>  2100082.,  370391.,   13905.,   42057.,  184460.,   83436.,
     2>   506559.,   59871.,    1084.,    3319.,   28263.,   20129.,
     3>   883563.,   70227.,    1886.,    4819.,   38378.,   35063.,
     4>  1167288.,   69094.,    2246.,    6706.,   47511.,   46317.,
     5>  2348827.,   97573.,    1479.,   12571.,   58226.,   93308.,
     6>  3658626.,  121684.,      0.,       0.,       0.,  145340.,
     7>  5151096.,  152266.,      0.,       0.,       0.,  204629.,
     8>  7397576.,  185276.,      0.,       0.,       0.,  293871.,
     9>  8461220.,  211814.,      0.,       0.,       0.,  336125.,
    10>  8581706.,  211166.,      0.,       0.,       0.,  340911.,
    11> 10274987.,  229451.,      0.,       0.,       0.,  408177.,
    12> 11161141.,  291911.,      0.,       0.,       0.,  443380.,
    13> 11003084.,  274759.,      0.,       0.,       0.,  437103.,
    14> 11170210.,  281879.,      0.,       0.,       0.,  443740.,
    15> 13145920.,  387705.,      0.,       0.,       0.,  522226.,
    16> 14599524.,  457770.,      0.,       0.,       0.,  579971.,
    17> 13959524.,  447576.,      0.,       0.,       0.,  518315./
C
C VBD74(I) = VEHICLE BREAKDOWN RATIO IN ITS IVBD GROUP.
C IVBD(I)=THE VBD GROUP TO WHICH TYPE I BELONGS.
C
ISN 0030        DATA IVBD/1,1,1,1,1,1,1,2,2,3,4,5,6,6/
C
C VAF(IVAF,IAGE)=FOUR ATTRITION FACTOR TABLES FOR VEHICLES
C       IAGE=AGE OF VEHICLES IN THE CURRENT YEAR.
C       IVAF(I)=1,2,3 OR 4, POINTS TO WHICH COLUMN TO USE FOR TYPE I
C
ISN 0031        DATA VAF      /
C
C IVAF=    1      2      3      4          1      2      3      4
C
C IAGE=          ODD IAGE                          EVEN IAGE
  1- 2>  1.000, 1.000, 1.000,0.98  ,   0.9998,1.0000,1.0000,0.96  ,
  3- 4>  0.9990,0.9998,0.9998,0.90  ,   0.9960,0.9927,0.9927,0.75  ,
  5- 6>  0.9877,0.9711,0.9711,0.55  ,   0.9685,0.9329,0.9329,0.37  ,
  7- 8>  0.9307,0.8783,0.8783,0.26  ,   0.8677,0.8089,0.8089,0.17  ,
  9-10>  0.7756,0.7272,0.7272,0.10  ,   0.6570,0.6364,0.6364,0.05  ,
```

```
          11-12>  0.5214,0.5402,0.5402,0.02  ,    0.3654,0.4424,0.4424,0.01  ,
          13-14>  0.2583,0.3469,0.3469,0.00  ,    0.1575,0.2576,0.2576,0.00  ,
          15-16>  0.0857,0.1780,0.1780,0.00  ,    0.0410,0.1113,0.1113,0.00  ,
          17-18>  0.0168,0.0598,0.0598,0.00  ,    0.0057,0.0248,0.0248,0.00  ,
          19-20>   0.0  ,0.0062,0.0062,0.00  ,     0.0  ,0.0013,0.0013,0.00  ,
          21-22>   0.0  ,0.0013,0.0013,0.00  ,     0.0  ,0.0000, 0.0  ,0.00  ,
          23-24>   0.0  ,0.0000, 0.0  ,0.00  ,     0.0  ,0.0000, 0.0  ,0.00  ,
          25-26>   0.0  ,0.0000, 0.0  , 0.0  ,     0.0  ,0.0000, 0.0  , 0.0  /
ISN 0032        DATA IVAF/1,1,1,1,1,1,1,2,2,3,3,3,4,4/
                C
                C VGF(IYR,IVGF(I)) IS A SET OF FOUR TABLES. EACH TABLE HAS FORTY REAL*4
                C   CONSTANTS, ONE FOR EACH YEAR IN THE TIMESTREAM. IT IS THE VEHICLE
                C   GROWTH FACTOR FOR VEHICLES IN THAT IVGF GROUP.
                C IVGF(I) IS THE POINTER WHICH POINTS TO THE APPROPIATE VGF TABLE FOR
                C   TYPE I VEHICLES.
                C
ISN 0033        DATA VGF /
                C               TABLE 1.   FOR TYPES 1-9,13-18
                C  1.0, 1.02, 1.040, 1.061, 1.08243, 1.104, 1.126, 1.149, 1.172,
                C 1.195, 1.219, 1.243, 1.268, 1.294, 1.3195, 1.346, 1.373, 1.40,
                C 1.428, 1.457, 1.486, 1.526, 1.546, 1.577, 1.608, 1.641, 1.673,
                C 1.707, 1.741, 1.776, 1.811, 1.848, 1.885, 1.922, 1.96 , 1.999,
                C 2.040, 2.081, 2.122, 2.165,
                C               TABLE 2.   FOR TYPE 10- INTERCITY BUSES
                C 1.0, 0.93, 0.93, 0.916, 5*0.93, 31*0.9311,
                C               TABLE 3.   FOR TYPE 11, TRANSIT BUSES
                C 1.0, 1.0, 1.51, 1.22, 1.168, .908, .874, 5*.802, 28* .835,
                C               TABLE 4.   FOR TYPE 12, SCHOOL BUSES
                C 1.0 , 1.0 , 0.99, 1.01, 1.03, 1.05, 1.11, 1.15, 1.19, 1.23,
                C 1.27, 1.31, 1.34, 1.38, 1.42, 1.46, 1.49, 1.53, 1.57, 1.61,
                C 1.64, 1.68, 1.72, 1.75, 1.79, 1.83, 1.86, 1.90, 1.94, 1.98,
                C 2.01, 2.05, 2.09, 2.13, 2.16, 2.20, 2.24, 2.27, 2.31, 2.35,
                1     60*0.0/
ISN 0034        DATA IVGF/1,1,1,1,1,1,1,1,1,2,3,4,1,1/
                C
                C TRAFFIC DATA
                C
                C               V, THE AVENAGE VELOCITY OF A SPEED RANGE
                C
ISN 0035        DATA V/2.E1,3.E1,4.E1,5.E1,6.E1/
                C
                C               JFLO, KFLO ARE THE FLOMIX TABLE SELECTORS
                C
ISN 0036        DATA JFLO/3*1,3*2,2*3,4/,KFLO/2*1,2,3,4,5/
                C
                C ADT, AVERAGE DAILY TRAFFIC.
                C
ISN 0037        DATA ADT       /
                C      K=  1         2         3         4         5         6
                C  J=
                     1   74866.,   66470.,   18768.,    9315.,    3783.,    1129.,
                     2   60228.,   32548.,   17397.,    6898.,    3496.,     656.,
                     3   46997.,   34036.,   16359.,    8045.,    3760.,     672.,
                     4   40367.,   28812.,   16029.,    8470.,    3812.,     839.,
                     5   32190.,   22984.,   14893.,    7301.,    3287.,     649.,
                     6   21913.,   19971.,   12376.,    6057.,    2917.,     645.,
                     7   23251.,   16875.,   11384.,    5430.,    2484.,     631.,
                     8   18206.,   13224.,    8922.,    4255.,    1946.,     495.,
```

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                9   13700.,    4623.,    2523.,     889.,     370.,      98.    /
            C
            C           KPER,IPER  ARE THE SELECTORS FOR THE PERCENT ARRAY
            C
ISN 0038          DATA KPER/3*1,3*2/,      IPER/7*1,3*2,3,4,2*1/
            C
            C VARIOUS ROADWAY DATA
            C
ISN 0039          DATA CZD/9*5.E1,3*3.E1,5*4.E1,8.E1,3*3.E1,5*4.E1,8.E1
                 1,3*3.E1,5*4.E1,8.E1,3*3.E1,5*4.E1,8.E1,3*3.E1,5*4.E1,8.E1/
ISN 0040          DATA WIDTH/9*1.5E1,45*1.2E1/,      LANE/45*4,9*2/
ISN 0041          DATA GAMM /12*0.,2*.5,4*0.,2*.5,4*0.,2*.5,4*0.,2*.5,4*.0,18*.5/
            C
            C NOW INITIALIZE VARIOUS VARIABLES
            C
ISN 0042          DATA ITABLE /0/,POPLTN /36 * 0.0/, POP / 9 * 0.0/,
                 *     WDTHPZ / 36 * 0.0 /, EDGEPZ / 216 * 0.0 /
ISN 0043          END
```

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS	
A	0003	0023
I	0003	
J	0008	
V	0005	0035
IT	0003	
KS	0008	
X2	0003	
ADT	0003	0037
ALO	0003	
COC	0007	0014
CZD	0003	0039
DBK	0003	0024
IFM	0008	
KOM	0007	0014
MYR	0003	
NAT	0004	0025
NHT	0004	0025
NSR	0004	0025
NVT	0004	0025
PGF	0003	
POP	0004	0042
VAF	0003	0031
VGF	0003	0033
VML	0003	
ACCM	0008	
ACEV	0008	
ADBL	0007	0010
AREA	0003	0018
EDGE	0005	
FIMP	0007	
FRIN	0007	
GAMM	0005	0041
IBEG	0006	
IEVB	0008	
IMS6	0008	
INCR	0004	

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS
IPER	0005	0038
IVAF	0003	0032
IVHD	0003	0030
IVGF	0003	0034
IYRN	0008	
JCOC	0007	0014
JFLO	0005	0036
JPGF	0003	0017
KFLO	0005	0036
KPER	0005	0038
LAME	0003	0040
LIFE	0003	0027
MILE	0004	
MYRB	0004	0025
MYRE	0003	
MYRN	0004	
NADB	0007	0009
NIDO	0004	0015
NLEV	0004	
NPMK	0003	
NRDB	0007	0009
NYRN	0004	
PACT	0007	0014
PGFO	0003	0017
RDBL	0007	0012
REMO	0003	0029
REPZ	0005	0013
VINC	0003	
VPOP	0003	
VTOT	0004	
XINC	0003	
YINC	0003	
ACLAP	0008	
ALREG	0004	
AVDBL	0007	0011
BVPOP	0003	
DLLEV	0007	
DLPSI	0007	
GVTOT	0004	
ICONT	0006	
IDUMP	0006	
IFIMP	0007	0014
INOUT	0007	0014
IPACT	0007	0014
IPLOT	0006	
ITABS	0006	
JMASK	0006	
JMYLE	0003	0022
KMASK	0006	
MYREF	0003	0026
MYREG	0004	
PLDEN	0007	0013
PNORM	0008	
RATIO	0007	
REDGE	0005	0013

```
*****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
RNAME   0006
SHIFT   0007  0021
VBD74   0003
VBD77   0003
VBD85   0003
VBD90   0003
VNTDB   0008
WIDTH   0003  0040
DJKLEV  0007
DRATIO  0007
EDGEPZ  0005  0042
EVPROB  0007
FLOMIX  0005
FPAREA  0003  0019
FPROAD  0003  0020
IEQAGE  0003  0028
IPRINT  0006
ITABLE  0006  0042
IVMASK  0006
KSJEVB  0008
METMSK  0006
METRIC  0007
MODMSK  0006
MYRNET  0004
NNTABS  0006
NPMILE  0003
PERCNT  0005
POPDEN  0004  0016
POPLTN  0004  0042
RDBCUT  0007  0013
RDBEDG  0007  0013
SEPROB  0007  0013
STOPGF  0004
TOTPOP  0004
VNTDAY  0008
VNTNIT  0008
WDTHPZ  0005  0042

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*SOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP NOFORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      42, PROGRAM SIZE =        0, SUBPROGRAM NAME =BIG001

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                              102K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS						
J	0004						
IE	0002	0007					
KS	0004						
COC	0003						
IFM	0004	0007					
KDB	0002	0008	0008	0009	0009	0010	0010
KOM	0003						
ACCM	0004	0008	0008	0009	0009		
ACEV	0004						
ADBL	0003						
FIMP	0003	0007					
FRTN	0003						
IEVB	0004						
IM56	0004	0010					
IYRN	0004						
JCOC	0003						
NADB	0003						
NRDB	0003						
PACT	0003						
RDBL	0003						
ACLMP	0004	0010	0010				
AVDBL	0003						
DLLEV	0003						
DLPSI	0003						
IFIMP	0003						
INOUT	0003						
IPACT	0003						
PLDEN	0003						
PNORM	0004						
RATIO	0003						
SHIFT	0003						
VNTDB	0004						
COLECT	0002						
DJKLEV	0003						
DRATIO	0003						
EVPROB	0003						
KSJEVB	0004	0010	0010	0010			
METRIC	0003						
NEVENT	0005	0006	0010				
POPFIM	0007	0008	0009	0010			
POPINC	0002	0007					
RDBCUT	0003						
RDBEDG	0003						
SEPROB	0003						
VNTDAY	0004	0006	0008				
VNTNIT	0004	0006	0009				

/ STRUCTURED SOURCE LISTING /

```
(001  ISN 0002            SUBROUTINE COLECT(POPINC,IE,KDB)                                  00010000
                          C                                                                 00049600
      ISN 0003            COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),   00049700
                    B5    2PLDEN(4,9,6,5,4),SEPHUB(4,9,6,6,5),                              00049800
                    B5    3RDBEDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLP81(9,6,4),                00049900
                    B5    4METRIC(20,7,2),DJALEV(9,6,4,2),DLLEV(5,2),                       00050000
                    B5    5PACT(5,2),FRTN(2),CUC(7),EVPROB(14,9,6),                         00050100
                    B5    6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),                      00050200
                    B5    7IFIMP(7),JCOC(7),INOUT(7),KOM(7),NADB,NRDB                       00050400
                          C                                                                 00050410
      ISN 0004            COMMON/BIG006/PNORM(3,2,4),ACEV(6,9),IYRN,IFM,                    00050420
                    B6    1ACCM(20,2),VNTDAY,VNTNIT,IEVB(6,9),KS,J,                         00050430
                    B6    2VNTDB(15,11,5,9),ACLWP(15,21),KSJEVB,IMS6                        00050440
                          C                                                                 00050490
      ISN 0005            REAL NEVENT
      ISN 0006            NEVENT=VNTDAY+VNTNIT
      ISN 0007            POPFIM = POPINC * FIMP(IE,IFM)                                    00060100
      ISN 0008            ACCM(KDB,1) = ACCM(KDB,1) + POPFIM * VNTDAY                       00060200
      ISN 0009            ACCM(KDB,2) = ACCM(KDB,2) + POPFIM * VNTNIT                       00060300
      ISN 0010            IF(KSJEVB.NE.0.AND.IMS6.EQ.1)
                         1ACLWP(KSJEVB,KDB)=ACLWP(KSJEVB,KDB)+POPFIM*NEVENT                 00060500
      ISN 0012            RETURN                                                            00090000
001)                      C
      ISN 0013            END                                                               00099999
```

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 12, PROGRAM SIZE = 498, SUBPROGRAM NAME =COLECT

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ****** 122K BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS									
CUC	0005									
KUM	0005									
NAT	0003									
NHT	0003									
NSR	0003									
NVT	0003									
PUP	0003									
ADBL	0005	0013	0014							
FIMP	0005									
FRTN	0005									
IBEG	0002	0013	0014	0017						
ILEV	0012	0013	0013	0014	0014	0016	0017	0017	0025	0025	0025
INCR	0003									
IYRN	0019	0020	0021	0021	0023	0023	0025	0025	0027	0027	
JBEG	0004									
JCOC	0005									
LLEV	0008	0017	0023							
MILE	0003									
MYRB	0003									
MYRN	0003									
NADB	0005									
NIDD	0003									
NLEV	0003									
NRDB	0005									
NYRN	0003	0019	0027							
PACT	0005									
RDBL	0005									
VTOT	0003									
YEAR	0006	0020								
ALREG	0003									
ARRAY	0002	0007	0025							
AVDBL	0005									
DLLEV	0005									
DLPSI	0005									
GVTOT	0003									
ICONT	0004									
IDUMP	0004									
IFIMP	0005									
INOUT	0005									
IPACT	0005									
IPLOT	0004									
ITABS	0004	0011	0021	0021	0023					
JMASK	0004									
KMASK	0004									
LIMIT	0007	0013	0014	0023						
MYREG	0003									
NTABS	0004									
PLDEN	0005									
RATIO	0005									

```
                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
RNAME   0004  0023
SHIFT   0005
TITLE   0002  0009  0023
DBBAND  0002
DJKLEV  0005
DRATIO  0005
EVPROB  0005
IPRINT  0004
ITABLE  0004  0010  0010  0023
IVMASK  0004
METMSK  0004
METRIC  0005
MODMSK  0004
MYRNET  0003  0020  0025
POPDEN  0003
POPLTN  0003
RDBCUT  0005
RDBEDG  0005
SEPROB  0005
STOPGF  0003
TOTPOP  0003

                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 LABEL   DEFINED   REFERENCES
 1000    0015      0012
 1001    0018      0016
 2000    0030      0019
 3001    0031      0023
 3002    0026      0025
 3003    0029      0027

                                        / STRUCTURED SOURCE LISTING /
(004  ISN 0002          SUBROUTINE DBBAND(IBEG,ARRAY,TITLE)
                        CT DBBAND     LAST UPDATE
                        CX DBBAND   TABULATES THE METRICS IN DBBANDS
                        C
      ISN 0003          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                  B2   2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                  B2   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                  B2   4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                        C
                        C END PRINT  COMMON BLOCK
                        C
      ISN 0004          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                  B4   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),JBEG(7),
                  B4   3IPLOT(7),ITABLE,ITABS,NTABS
                        C
      ISN 0005          COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),
                  B5   2PLDEN(4,9,6,5,4),SEPROB(4,9,6,6,5),
                  B5   3RDBEDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLPSI(9,6,4),
                  B5   4METRIC(20,7,2),DJKLEV(9,6,4,2),DLLEV(5,2),
                  B5   5PACT(5,2),FRTN(2),COC(7),EVPROB(14,9,6),
                  B5   6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),
```

```
                  85   /IFINP(7),JCOC(7),INOUT(7),KOM(7),NADB,NRDB
                       C
      ISN 0006         INTEGER YEAR
      ISN 0007         REAL ARRAY(10, 9),LIMIT(20)
      ISN 0008         DIMENSION LLEV(10)
      ISN 0009         REAL*8 TITLE(6)
      ISN 0010         ITABLE = ITABLE + 1
      ISN 0011         ITABS  = 0
                       C
                       C    ESTABLISH UPPER AND LOWER LEVELS
                       C
      ISN 0012         DO 1000 ILEV=1,10
                       C
(003  ISN 0013         LIMIT(2*ILEV-1)  =  ADBL(ILEV+IBEG)
      ISN 0014         LIMIT(2*ILEV) = ADBL(ILEV+IBEG+1)
                       C
      ISN 0015    1000 CONTINUE
                       C
                       C
 003)
      ISN 0016         DO 1001  ILEV=1,10
                       C
(002  ISN 0017         LLEV(ILEV) = ILEV  + IBEG
                       C
      ISN 0018    1001 CONTINUE
                       C
                       C
                       C
                       C
 002)
      ISN 0019         DO 2000 IYRN=1,NYRN
                       C
(001  ISN 0020         YEAR = MYRNET(IYRN)
      ISN 0021         IF(IYRN.EQ.1.OR.IYRN.EQ.21) ITABS = ITABS + 1
      ISN 0023         IF(IYRN.EQ.1.OR.IYRN.EQ.21) WRITE(6,3001) ITABLE,ITABS,TITLE,
                      *RNAME,LLEV,LIMIT
      ISN 0025         WRITE(6,3002) MYRNET(IYRN),(ARRAY(ILEV,IYRN),ILEV=1,10)
C-------
      ISN 0026    3002     FORMAT(' |',T12,'|',10(11X,'|')/T4,I4,T11,10(3X,1PE9.3)/
                     *   '+|',T12,'|',10(11X,'|'))
      ISN 0027               IF(IYRN.EQ.20.OR.IYRN.EQ.NYRN) WRITE(6,3003)
      ISN 0029    3003     FORMAT(' |',T12,'|',10(11X,'|')/'+',131('_'))
                           C
C-------
      ISN 0030    2000 CONTINUE
                       C
                       C
 001)
      ISN 0031    3001 FORMAT('1'/'     TABLE ',I2,'.',I2,4X,6A8,T110,5A4/
                     *'0'/'0',131('_')/' |',T12,'|',10(11X,'|')/
                     *'   BAND #>',T8,10(10X,I2)/'+|',T12,'|',10(11X,'|')/
                     *' |',T12,'|',10(11X,'|')/'+',T12,121('_')/
                     *' | LEVEL,',T12,'|',10(11X,'|')/
                     *'   IN DBA>',T11,10(3X,F4.0,'-',F4.0)/
                     *'+|',T12,'|',10(11X,'|')/' |',T12,'|',10(11X,'|')/
                     *'+',131('_')/' |  YEAR',T12,'|',10(11X,'|'))
                       C
      ISN 0032         RETURN
 004)                  C
      ISN 0033         END
```

```
LEVEL 2.2  (SEPT 76)          DBBAND          OS/360  FORTRAN H EXTENDED          DATE 88.273/19.27.30        PAGE
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*     SOURCE STATEMENTS =      32, PROGRAM SIZE =     1310, SUBPROGRAM NAME =DBBAND
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******                                    122K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS			
J	0012	0013	0013		
L	0010	0013	0015		
IL	0007	0008	0013		
KM	0006	0008	0013	0013	
KS	0011	0013	0015		
COC	0004				
KOM	0004				
AOBL	0004				
FIMP	0004				
FRTN	0004				
IBEG	0003				
JCOC	0004				
NAOB	0004				
NROB	0004				
PACT	0004				
RDBL	0004				
AVDBL	0004				
DELTA	0005	0013	0015		
DLLEV	0004	0013			
DLPSI	0004				
ICONT	0003				
IDUMP	0003				
IFIMP	0004				
INOUT	0004				
IPACT	0004				
IPLOT	0003				
ITABS	0003				
JMASK	0003				
KMASK	0003				
PLOEN	0004				
RATIO	0004				
RNAME	0003	0008			
SHIFT	0004				
DJKLEV	0004	0013			
DRATIO	0004				
DUMPER	0002				
EVPROB	0004				
IPRINT	0003				
ITABLE	0003				
IVMASK	0003				
METMSK	0003				
METRIC	0004				
MODMSK	0003				
NNTABS	0003				
RDBOUT	0004				
RDBEDG	0004				
SEPROB	0004				

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                    ******F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
LABEL   DEFINED   REFERENCES
1000    0018      0006  0007
1001    0017      0010  0011
1002    0014      0012
2000    0009      0008
2001    0016      0015

                                    / STRUCTURED SOURCE LISTING /
(006  ISN 0002          SUBROUTINE DUMPER                                                  00050900
                        C                                                                  00051000
                        C DUMPS THE COMBINED DELTA LEVEL ARRAYS                            00051100
                        C                                                                  00051200
      ISN 0003          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),  00051240
                  B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),                   00051250
                  B4    3IPLOT(7),ITABLE,ITABS,NNTABS                                      00051260
      ISN 0004          COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),     00051300
                  B5    2PLDEN(4,9,6,4,5),SEPROB(4,9,6,6,5),                               00051400
                  B5    3RDBEDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLPSI(9,6,4),                 00051500
                  B5    4METRIC(20,7,2),DJKLEV(9,6,4,2),DLLEV(5,2),                        00051600
                  B5    5PACT(5,2),PRTN(2),COC(7),EVPROB(14,9,6),                          00051700
                  B5    6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),                       00051800
                  B5    7IFIMP(7),JCUC(7),INOUT(7),KOM(7),NADB,NRDB                        00051900
      ISN 0005          DIMENSION DELTA(9)                                                 00052000
                        C                                                                  00052100
      ISN 0006          DO 1000 KM=1,2                                                     00052200
(005  ISN 0007          DO 1000 IL=1,4                                                     00052300
                        C                                                                  00052400
(004  ISN 0008          WRITE(6,2000) KM,IL,RNAME                                          00052500
      ISN 0009    2000  FORMAT('1 #10 DUMP: COMBINED DELTA ARRAYS,KM= ',I2,' IL= ',I2,     00052600
                       *T110,5A4//)                                                        00052700
                        C                                                                  00052800
      ISN 0010          DO 1001 L=1,5                                                      00052900
(003  ISN 0011          DO 1001 KS=1, 6                                                    00053000
(002  ISN 0012          DO 1002 J=1,9                                                      00053100
                        C                                                                  00053200
(001  ISN 0013          DELTA(J) = DJKLEV(J,KS,IL,KM) + DLLEV(L,KM)                        00053300
                        C                                                                  00053400
      ISN 0014    1002  CONTINUE                                                           00053500
                        C                                                                  00053600
 001)                   C
      ISN 0015          WRITE(6,2001) L,KS,DELTA                                           00053700
      ISN 0016    2001  FORMAT('  ',2I3,2X,9F10.3)                                         00053800
                        C                                                                  00053900
      ISN 0017    1001  CONTINUE                                                           00054000
                        C                                                                  00054010
 002)                   C
 003)                   C
      ISN 0018    1000  CONTINUE                                                           00054020
                        C                                                                  00054100
 004)                   C
 005)                   C
      ISN 0019          RETURN                                                             00054200
 006)                   C
      ISN 0020          END                                                                00054300
```

```
 LEVEL 2.2  (SLPT 76)          DUMPER          OS/360  FORTRAN H EXTENDED          DATE 80.273/19.28.28        PAGE   3

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =       19, PROGRAM SIZE =       876, SUBPROGRAM NAME =DUMPER

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    122K BYTES OF CORE NOT USED
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/EL (S 76) E..NT:

REQUESTED OP[illegible]S: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AU[illegible]OBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NUANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS															
A	0003																
I	0003	0012	0013	0026	0030	0032	0032	0032	0034								
J	0008	0015	0016	0017	0022	0032	0038	0038	0044	0046	0048	0049	0050	0050	0052	0054	0054
M	0023	0024	0026	0030	0032	0032	0034										
V	0005																
IT	0003																
X8	0008	0019	0020	0022	0032	0032	0034	0038	0038	0045	0046	0048	0049	0050	0050	0052	0054	0054
X2	0003																
ADT	0003																
ALO	0003																
COC	0007																
CZD	0003																
DBK	0003																
IFM	0008																
INT	0050																
KOM	0007																
MYR	0003																
NAT	0004	0015	0044														
NMT	0004	0019	0045														
NID	0016																
NSR	0004																
NVT	0004	0012															
PGF	0003																
POP	0004																
VAF	0003																
VGF	0003																
VPL	0003	0030	0032														
ACCM	0008																
ACEV	0008	0011	0038	0038	0046	0048											
ADBL	0007																
AREA	0003																
EDGE	0005																
FIMP	0007																
FRIN	0007																
GAMM	0005																
IBEG	0006																
IEVB	0008	0010	0049	0050	0050	0052	0054	0054									
IM56	0008																
INCR	0004																
IPER	0005	0032	0034														
IVAF	0003																
IVBO	0003																
IVGF	0003																
IYRN	0008																
JCOC	0007																
JFLO	0005																
JPGF	0003																
KFLO	0005																
KPER	0005	0032	0034														

*****FORTRAN CROSS REFERENCE LISTING*****

SYMBOL	INTERNAL STATEMENT NUMBERS				
LANE	0003	0022			
LIFE	0003				
MILE	0004				
MYRB	0004				
MYRE	0003				
MYRN	0004				
NADB	0007				
NIDD	0004	0016			
NLEV	0004	0026			
NPWR	0003				
NRDB	0007				
NYRN	0004				
PACT	0007				
PGFQ	0003				
RDBL	0007				
REMD	0003				
REPZ	0005				
VINC	0003				
VPOP	0003				
VTOT	0004				
XINC	0003				
YINC	0003				
ZERO	0011				
ACLOG	0048	0049	0050	0050	0052
ACLWP	0008				
ALREG	0004				
AVDBL	0007				
BVPOP	0003				
DLLEV	0007				
DLPSI	0007				
FLOAT	0050				
GVTOT	0004				
ICONT	0006	0028	0032	0034	0036
IDUMP	0006				
IFIMP	0007				
INOUT	0007				
IPACT	0007				
IPLOT	0006				
ITABS	0006				
JMASK	0006	0017			
JMYLE	0003				
KMASK	0006	0020			
LEVEL	0027	0028	0030	0032	
MYREF	0003				
MYREG	0004				
NLANE	0022	0034	0036		
NTABS	0006				
PLDEN	0007				
PNORM	0008	0034			
RATIO	0007				
REDGE	0005				
RNAME	0006				
SHIFT	0007				
VBD74	0003				
VBD77	0003				

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS				
VBD85	0003				
VBD90	0003				
VNTDB	0008				
WIDTH	0003				
ZERO1	0010				
ALOG10	0048				
DJKLEV	0007				
DRATIO	0007				
EDGEPZ	0005				
EVENTS	0002				
EVPROB	0007	0032			
FLOMIX	0005				
FPAREA	0003				
FPROAD	0003				
IEOAGE	0003				
IPRINT	0006				
ITABLE	0006				
IVMASK	0006	0013			
KSJEVB	0008				
METMSK	0006				
METRIC	0007				
MODMSK	0006	0024			
MYRNET	0008				
NEVENT	0009	0032	0034	0036	0038
NLEVEL	0026	0027			
NPMILE	0003				
PERCNT	0005	0032			
POPDEN	0004				
POPLTN	0004				
RDBCUT	0007				
RDBEDG	0007				
SEPROB	0007				
STOPGF	0004				
TOTPOP	0004				
VNTDAY	0008				
VNTINIT	0008				
WDTHPZ	0005				

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES		
500	0039	0027	0028	0030
501	0040	0023	0024	
502	0041	0019	0020	
503	0042	0015	0017	
504	0043	0012	0013	
600	0056	0044	0045	0046

/ STRUCTURED SOURCE LISTING /

```
(008  ISN 0002            SUBROUTINE EVENTS
                          C
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMC(6,17),XINC(7),YINC(7),
                     B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                     B1   3VML(14,4,5),A(2,3),DBK(3),CZU(9,6),PGF(5),
```

```
                B1    4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                B1    6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
                B1    7MYREF(6),IVHD(14),LIFE(4),IEQAGE(6),JAYLE(9,4),
                B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
                      C
                      C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                      C
     ISN 0004         COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                B2    2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                B2    3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                B2    4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                      C
                      C END PRINT  COMMON BLOCK
                      C
     ISN 0005         COMMON /BIG003/ GAMM(6,9),V(5),EDGE(4,9),EDGEPZ(4,9,6),
                B3    2WDTHPZ(4,9),FLOMIX(14,4,5),PERCNT(4,2,4),
                B3    3REPZ(4,9,6,4),REDGE(4,9,6,4),
                B3    4JFLO(9),KFLO(6),KPER(6),IPER(14)
     ISN 0006         COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                B4    3IPLOT(7),ITABLE,ITABS,NTABS
                      C
     ISN 0007         COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),
                B5    2PLDEN(4,9,6,5,4),SEPROB(4,9,6,6,5),
                B5    3RDMEDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLPSI(9,6,4),
                B5    4METRIC(20,7,2),DJKLEV(9,6,4,2),DLLEV(5,2),
                B5    5PACT(5,2),FRTN(2),COC(7),EVPROB(14,9,6),
                B5    6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),
                B5    7IFIMP(7),JCOC(7),INOUT(7),KOM(7),NADB,NRDB
                      C
     ISN 0008         COMMON/BIG006/PNORM(3,2,4),ACEV(6,9),IYRN,IFM,
                B6    1ACCM(20,2),VNTDAY,VNTNIT,IEVB(6,9),KB,J,
                B6    2VNTDB(15,11,5,9),ACLWP(15,21),KSJEVB,IM56
     ISN 0009         REAL NEVENT
     ISN 0010         CALL ZERO1(IEVB,54)
     ISN 0011         CALL ZERO(ACEV,54)
                      C
     ISN 0012         DO 504  I=1,NVT
                      C
(007 ISN 0013         IF(IVMASK(I).EQ.0)                    GO TO 504
                      C
     ISN 0015            DO 503  J      = 1,NAT
                         C
(005 ISN 0016            NID    = NIDD(J)
     ISN 0017            IF(JMASK(J).EQ.0)                    GO TO 503
                         C
     ISN 0019               DO 502  KS=1,NHT
                            C
(003 ISN 0020               IF(KMASK(KS).EQ.0)                   GO TO 502
     ISN 0022                  NLANE= LANE(J,KS)
                               C
     ISN 0023                  DO 501  M=1,3
                               C
(002 ISN 0024                  IF(MODMSK(M).EQ.0)                   GO TO 501
     ISN 0026                     NLEVEL = NLEV(I,M)
                                  C
     ISN 0027                     DO 500  LEVEL=1,NLEVEL
```

```
                                  C
(001  ISN 0026                    IF(ICONT(10).NE.0.AND.LEVEL.GT.1)        GO TO 500
      ISN 0030                       IF(VML(I,M,LEVEL).LE.1.0)                GO TO 500
                                     C
      ISN 0032                       IF(ICONT(10).EQ.0)   NEVENT = VML(I,M,LEVEL) * EVPROB(I,J,KS)
                        *            * PERCNT(M,KPER(KS),IPER(I))
      ISN 0034                       IF(ICONT(10).EQ.1)   NEVENT = 1./ NLANE *
                        *            PNORM(M,KPER(KS),IPER(I))
      ISN 0036                       IF(ICONT(10).EQ.2)   NEVENT = 1./ NLANE / 3.
                                     C
      ISN 0038                       ACEV(KS,J) = ACEV(KS,J) + NEVENT
      ISN 0039      500            CONTINUE
 001)                              C
      ISN 0040      501          CONTINUE
 002)                            C
      ISN 0041      502        CONTINUE
 003)                          C
      ISN 0042      503      CONTINUE
 005)                        C
      ISN 0043      504   CONTINUE
                          C
                          C   CONVERT QUANTITY OF EVENTS (ACEV) TO ITS BIN NUMBER (IEVB).
                          C
 007)                     C
      ISN 0044            DO 600 J=1,NAT
(006  ISN 0045            DO 600 KS=1,NHT
(004  ISN 0046            IF(ACEV(KS,J).EQ.0.) GO TO 600
      ISN 0048               ACLOG=ALOG10(ACEV(KS,J))*3.
      ISN 0049               IEVB(KS,J)=ACLOG+2.
      ISN 0050               IF(FLOAT(INT(ACLOG)).EQ.ACLOG) IEVB(KS,J)=IEVB(KS,J)-1
      ISN 0052               IF(ACLOG.LT.0.) IEVB(KS,J)=1
      ISN 0054               IF(IEVB(KS,J).GT.14) IEVB(KS,J)=14
      ISN 0056      600   CONTINUE
 004)                     C
 006)                     C
      ISN 0057            RETURN
 008)                     C
      ISN 0058            END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      57, PROGRAM SIZE =     1818, SUBPROGRAM NAME =EVENTS

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    110K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALL NOANSF NOTERM FLAG(I)

***** F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL	STATEMENT NUMBERS					
A	0003						
I	0003						
J	0008						
V	0005						
IT	0003						
KS	0008						
X2	0003						
ADT	0003						
ALO	0003						
CGC	0007						
CZD	0003						
DBR	0003						
IFM	0008						
IIM	0002	0026	0027	0027			
KDB	0026	0026	0026	0027	0027	0027	
KOM	0007						
MYR	0003						
NAT	0004						
NHT	0004						
NSR	0004						
NVT	0004						
PGF	0003						
POP	0004						
VAF	0003						
VGF	0003						
VML	0003						
ACCM	0008						
ACEV	0008						
ADBL	0007	0018	0019				
AREA	0003						
EDGE	0005						
FIMP	0007						
FRTN	0007						
GAMM	0005						
IBEG	0002	0018	0019	0020			
IBIN	0025	0026	0026				
IEVB	0008						
ILEV	0017	0018	0018	0019	0019	0020	0020
IMSG	0008						
INCR	0004						
IPER	0005						
IVAF	0003						
IVBD	0003						
IVGF	0003						
IYRN	0008	0021	0022	0026	0027	0027	
JBEG	0006						
JCOC	0007						
JFLO	0005						
JPGF	0003						

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS				
KFLO	0005				
KPER	0005				
LANE	0003				
LIFE	0003				
LLEV	0009	0020	0024		
MILE	0004				
MYRB	0004				
MYRE	0003				
MYRN	0004				
NADB	0007				
NIDD	0004				
NLEV	0004				
NPMK	0003				
NRDB	0007				
NYRN	0004	0021			
PACT	0007				
PGFO	0003				
RDBL	0007				
REMU	0003				
REPZ	0005				
VINC	0003				
VPOP	0003				
VTOT	0004				
XINC	0003				
YEAR	0010	0022	0024		
YINC	0003				
ACLWP	0008				
ALREG	0004				
AVDBL	0007				
BVPOP	0003				
DLLEV	0007				
DLPSI	0007				
GVTOT	0004				
ICONT	0006				
IDUMP	0006				
IFIMP	0007				
INOUT	0007				
IPACT	0007				
IPLOT	0006				
ITABS	0006	0016	0025	0023	0024
JMASK	0006				
JWYLE	0003				
KMASK	0006				
LIMIT	0011	0018	0019	0024	
MYREF	0003				
MYREG	0004				
NTABS	0006				
PLDEN	0007				
PNORM	0008				
RATIO	0007				
REDGE	0005				
RNAME	0006	0024			
SHIFT	0007				
TITLE	0002	0012	0024		
VBD74	0003				

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS							
VBD77	0003							
VBD85	0003							
VBD90	0003							
VNTDB	0008	0026	0027	0027				
WIDTH	0003							
OJKLEV	0007							
ORATIO	0007							
EDGEPZ	0005							
EVNTDB	0002							
EVPROB	0007							
FLOMIX	0005							
FPAREA	0003							
FPROAD	0003							
IEOAGE	0003							
IPRINT	0006							
ITABLE	0006	0015	0015	0024				
IVMASK	0006							
KSJEVB	0008							
METMSK	0006							
METRIC	0007							
MODMSK	0006							
MYRNET	0004	0022						
NPMILE	0003							
PERCNT	0005							
POPDEN	0004							
POPLTN	0004							
RDBCUT	0007							
RDBEDG	0007							
SEPROB	0007							
STOPGF	0004							
STRING	0012	0014	0024	0024	0024	0024	0024	0024
TOTPOP	0004							
VNTDAY	0008							
VNTNIT	0008							
VNTRNG	0012	0013	0026					
WDTHPZ	0005							

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
100	0020	0017
200	0027	0021
300	0026	0025
3030	0030	0027
4040	0029	0026
5050	0028	0024

/ STRUCTURED SOURCE LISTING /

```
(004  ISN 0002            SUBROUTINE EVNTDB(IBEG,TITLE,IIM)
                          C
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                     B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                     B1   3VKL(14,4,5),A(2,3),DBK(3),CZD(9,6),PGF(5),
                     B1   4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
```

```
                B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                B1    6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
                B1    7MYREF(6),IVHD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),
                B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
                      C
                      C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                      C
     ISN 0004         COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                B2    2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                B2    3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                B2    4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                      C
                      C END PRINT  COMMON BLOCK
                      C
     ISN 0005         COMMON /BIG003/ GAMM(6,9),V(5),EDGE(4,9),EDGEPZ(4,9,6),
                B3    2WDTHPZ(4,9),FLOMIX(14,4,5),PERCNT(4,2,4),
                B3    3REPZ(4,9,6,4),REDGE(4,9,6,4),
                B3    4JFLO(9),KFLO(6),KPER(6),IPER(14)
     ISN 0006         COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),JBEG(7),
                B4    3IPLOT(7),ITABLE,ITABS,NTABS
                      C
     ISN 0007         COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),
                B5    2PLDEN(4,9,6,5,4),SEPROB(4,9,6,6,5),
                B5    3RDBEDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLPSI(9,6,4),
                B5    4METRIC(20,7,2),DJKLEV(9,6,4,2),DLLEV(5,2),
                B5    5PACT(5,2),FRTN(2),COC(7),EVPROB(14,9,6),
                B5    6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),
                B5    7IFIMP(7),JCOC(7),INOUT(7),KOM(7),NADB,NRDB
                      C
     ISN 0008         COMMON/BIG006/PNORM(3,2,4),ACEV(6,9),IYRN,IFM,
                B6    1ACCM(20,2),VNTDAY,VNTNIT,IEVB(6,9),KS,J,
                B6    2VNTDB(15,11,5,9),ACLWP(15,21),KSJEVB,IM56
     ISN 0009         DIMENSION LLEV(10)
     ISN 0010         INTEGER YEAR
     ISN 0011         REAL LIMIT(20)
     ISN 0012         REAL*8 TITLE(4),VNTRNG(14),STRING(6)
     ISN 0013         DATA VNTRNG/8HO>0-1. 0,8HO2.15440,8HO4.64160,8HO10.0000,
                     18HO21.5440,8HO46.4160,8HO100.000,8HO215.440,
                     28HO464.160,8HO1000.00,8HO2154.40,8HO4641.60,
                     38HO10000.0,8HO>100000/
     ISN 0014         DATA STRING/8HPOPULATI,8HON EXPOS,8HED TO    ,
                     18HBY EVENT,8H BIN AND,8H DB BIN /
     ISN 0015         ITABLE=ITABLE+1
     ISN 0016         ITABS=0
                      C      ESTABLISH UPPER AND LOWER LIMITS
     ISN 0017         DO 100 ILEV=1,10
(003 ISN 0018         LIMIT(2*ILEV-1)=ADBL(ILEV+IBEG)
     ISN 0019         LIMIT(2*ILEV)=ADBL(ILEV+IBEG+1)
     ISN 0020     100 LLEV(ILEV)=ILEV+IBEG
 003)                 C
     ISN 0021         DO 200 IYRN=1,NYRN
(002 ISN 0022         YEAR=MYRNET(IYRN)
     ISN 0023         ITABS=ITABS+1
     ISN 0024         WRITE(6,5050) ITABLE,ITABS,YEAR,STRING(1),STRING(2),
                     1STRING(3),TITLE,RNAME,STRING(4),STRING(5),STRING(6),
                     2LLEV,LIMIT
     ISN 0025         DO 300 IBIN=1,14
```

```
(001  ISN 0026        300  WRITE(6,4040) VNTRNG(IBIN),(VNTDB(IBIN,KDB,IIM,IYRN),KDB=1,11)
 001)                      C
      ISN 0027        200  WRITE(6,3030)(VNTDB(15,KDB,IIM,IYRN),KDB=1,10),
                          1VNTDB(15,11,IIM,IYRN)
 002)                      C
      ISN 0028        5050 FORMAT('1'/'      TABLE ',I2,'.',I2,4X,I4,1X,2A8,A6,4A8,T110,5A4/
                          1'0',T21,3A6/'0'/'0',131('_')/' 0',T5,'DB',T9,'0',10(10X,'0'),
                          2T132,'0'/'+X',T9,'X',10(10X,'X'),T132,'X'/'++',T9,'+',10(10X,
                          3'+'),T132,'+'/' OBIN # 0',10(4X,I2,4X,'0'),T123,'TOTALS',T132,'0'/
                          4'+X',T9,'X',10(10X,'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,
                          5'+'/' 0',T9,'0',10(10('_'),'0'),T125,'BY',T132,'0'/'+X',T9,'X',
                          610(10X,'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,'+'/
                          7' OLEVEL,0',10(10X,'0'),T121,'EVENT BIN  0'/'+X',T9,'X',
                          810(10X,'X'),T132,'X'/'+',T9,'+',10(10X,'+'),T132,'+'/
                          9' OIN DBA0',10(1X,F4.0,'-',F4.0,'0'),T132,'0'/'+X',T9,'X',
                          X10(10X,'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,'+'/
                          1' 0',6('_'),T9,'0',10(10('_'),'0'),12('_'),'0'/'+X',T9,'X',
                          210(10X,'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,'+'/
                          3' 0 # OF 0',10(10X,'0'),T132,'0'/'+X',T9,'X',10(10X,'X'),T132,
                          4'X'/'++',T9,'+',10(10X,'+'),T132,'+'/' OEVENTS0',10(10X,'0'),
                          5T132,'0'/'+X',T9,'X',10(10X,'X'),T132,'X'/'++',T9,'+',
                          610(10X,'+'),T132,'+'/' 0(≤  #)0',10(10X,'0'),T132,'01'/'+X _'&T9,
                          7'X',10(10X,'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,'+'/' 0',
                          8T9,'0',10(10X,'0'),T132,'0'/'+X',T9,'X',10(10X,'X'),T132,'X'/
                          9'++',T9,'+',10(10X,'+'),T132,'+')
                           C
      ISN 0029        4040 FORMAT(' ',A8,10(1X,1PE9.3,'0'),2X,1PE9.3,1X,'0'/
                          1'+X',T9,'X',10(10X,'X'),T132,'X'/
                          2'++',T9,'+',10(10X,'+'),T132,'+'/
                          3' 0',T9,'0',10(10X,'0'),T132,'0'/
                          4'+X',T9,'X',10(10X,'X'),T132,'X'/
                          5'++',T9,'+',10(10X,'+'),T132,'+')
                           C
      ISN 0030        3030 FORMAT('+',131('_')/' OTOTALS0',10(10X,'0'),T132,'0'/
                          1'+X',T9,'X',10(10X,'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,
                          2'+'/' 0  BY  0'/'+',T10,10(1X,1PE9.3,'0'),T132,'0'/'+X',T9,'X',
                          310(10X,'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,'+'/
                          4' 0       0'/'+ DB BIN ',10(10X,'0'),T132,'0'/'+X',6('_'),'X',
                          510(10('_'),'X'),T132,'X'/'++',T9,'+',10(10X,'+'),T132,'+'/
                          6' 0',T119,'0',T132,'0'/'+X',T119,'X',T132,'X'/'++',T119,'+',
                          7T132,'+'/' 0   GRAND TOTAL'/'+',T119,'0',2X,1PE9.3,1X,'0'/
                          7'+X',T119,'X',T132,'X'/
                          8'++',T119,'+',T132,'+'/' 0'/'+',T119,'0',T132,
                          9'0'/'+X',T119,'X',T132,'X'/'+',131('_')/'++',T119,'+',
                          XT132,'+')
                           C
      ISN 0031            RETURN
 004)                      C
      ISN 0032            END
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =       31, PROGRAM SIZE =      2772, SUBPROGRAM NAME *EVNTDB

*STATISTICS*  NO  DIAGNOSTICS GENERATED
```

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LEVEL 2.2 (SEPT 76)        CVNTDB        OS/360  FORTRAN H EXTENDED        DATE 80.273/19.30.27        PAGE  6
****** END OF COMPILATION ******                                  110K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL	STATEMENT NUMBERS																
A	0003																	
I	0003	0012	0013	0013	0013	0014	0014	0014	0015	0015	0017	0017	0018	0018	0018	0022	0023	0023	0023
	0024	0024	0024	0025	0025	0026													
II	0003																		
X2	0003																		
ADI	0003																		
ALO	0003																		
CZO	0003																		
DBK	0003																		
FIX	0002																		
MYR	0003																		
PGF	0003																		
SUM	0007	0017																	
.AF	0003																		
GF	0003																		
VML	0003																		
AREA	0003																		
IBEG	0004																		
IVAF	0003																		
IVBD	0003																		
IVGF	0003																		
JPGF	0003																		
LANE	0003																		
LIFE	0003																		
MYME	0003																		
NPMK	0003																		
PGFO	0003																		
REMO	0003																		
VINC	0003	0014	0024																
VPUP	0003																		
XINC	0003	0013	0023																
YINC	0003	0008	0009	0018	0026														
BVPUP	0003																		
ICONT	0004	0005																	
IDUMP	0004																		
IPLOT	0004																		
ITABS	0004																		
JMASK	0004																		
JMYLE	0003																		
KMASK	0004																		
MYREF	0003																		
NTABS	0004																		
RNAME	0004																		
VBD74	0003	0014	0024																
VBD77	0003	0013	0014	0023	0024														
VBD85	0003	0007	0007	0007	0007	0007	0008	0009	0013	0017	0018	0023	0025						
VBD90	0003	0010	0011	0017	0018	0025													
WIDTH	0003																		
FPAREA	0003																		

```
                  *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL   INTERNAL STATEMENT NUMBERS
FPROAD   0003
IEQAGE   0003
IPRINT   0004
ITABLE   0004
IVMASK   0004
METMSK   0004
MODMSK   0004
NPMILE   0003

                  *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 LABEL    DEFINED   REFERENCES
 1000     0019      0012  0015
 2000     0021      0005
 3000     0027      0022

                              / STRUCTURED SOURCE LISTING /
(003  ISN 0002          SUBROUTINE FIX                                                  00064100
                        C BELONGS TO SINGLE EVENT MODEL
                        CX FIX  COMPUTES INTER-EXTRAPOLATORY ARRAYS FOR FUNCTION VBD    00064120
                        C                                                               00064130
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7), 00064310
                  B1    2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                  00064320
                  B1    3VML(14,4,5),A(2,3),DBK(3),CZD(9,6),PGF(5),                     00064330
                  B1    4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                       00064340
                  B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                   00064350
                  B1    6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),                00064360
                  B1    7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),                00064370
                  B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I                   00064380
      ISN 0004          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9), 00064390
                  B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),                00064400
                  B4    3IPLOT(7),ITABLE,ITABB,NTABS                                    00064410
                        C                                                               00064600
                        C FIXES VBD SO THAT CATEGORIES 1 AND 3 DIE AFTER 1990           00064700
                        C                                                               00064800
                        C                                                               00064820
      ISN 0005          IF(ICONT(4).EQ.1) GOTO 2000                                     00064840
                        C                                                               00064860
      ISN 0007             SUM  =            VBD85(2)           + VBD85(4)                 00064900
                       1   + VBD85(5) + VBD85(6) + VBD85(7)                                00065000
      ISN 0008             YINC (1) = -VBD85(1) / 5.0E0                                    00065010
      ISN 0009             YINC (3) = -VBD85 (3)/ 5.0E0                                    00065020
      ISN 0010             VBD90(1) = 0.0E0                                                00065030
      ISN 0011             VBD90(3) = 0.0E0                                                00065040
                           C                                                               00065100
                           C RENORMALIZE THE REST OF YINC ACCORDING TO VBD85               00065120
                           C                                                               00065140
      ISN 0012             DO 1000 I = 1,7                                                 00065160
                           C                                                               00065180
(001  ISN 0013             XINC(I) = (VBD85(I)-VBD77(I)) / 8.0                             00065240
      ISN 0014             VINC(I) = (VBD77(I)-VBD74(I)) / 3.0                             00065260
      ISN 0015             IF(I.EQ.1.OR.I.EQ.3) GOTO 1000                                  00065414
      ISN 0017                VBD90(I) = VBD85(I) / SUM                                       00065420
      ISN 0018                YINC(I)  = (VBD90(I) - VBD85(I)) / 5.0E0                           00065430
```

```
                                C                                                                  00065440
      ISN 0019      1000        CONTINUE                                                          00065450
                                C                                                                 00065460
 001)                           C
      ISN 0020                  RETURN                                                            00065600
                                C                                                                 00065620
      ISN 0021      2000      CONTINUE                                                          00065640
                              C                                                                 00065660
      ISN 0022                DO 3000 I = 1,7                                                   00065680
                              C                                                                 00065690
(002  ISN 0023                XINC(I) = (VBD85(I)-VBD77(I)) / 8.0                               00065700
      ISN 0024                VINC(I) = (VBD77(I)-VBD74(I)) / 3.0                               00065710
      ISN 0025                VBD90(I) = VBD85(I)                                               00065730
      ISN 0026                YINC(I)  = 0.0E0                                                  00065740
                              C                                                                 00065750
      ISN 0027      3000      CONTINUE                                                          00065760
 002)                         C
      ISN 0028                RETURN                                                            00065770
                              C          DEBUG SUBCHK                                           00065775
 003)                         C
      ISN 0029                END                                                               00065780


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      28, PROGRAM SIZE =      550, SUBPROGRAM NAME =   FIX

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
```

REQUEST OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMIN NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS						
IBEG	0003						
HEADG	0002						
ICASE	0002	0005	0008	0013	0016		
ICONT	0003						
IDUMP	0003						
IPLOT	0003						
ITABS	0003	0004	0004	0005	0005	0008	0008
JMASK	0003						
KMASK	0003						
NTABS	0003	0005	0008				
RNAME	0003	0005	0008				
HEADER	0011						
IPRINT	0003						
ITABLE	0003	0005	0008				
IVMASK	0003						
METMSK	0003						
MODMSK	0003						

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES	
1000	0007	0005	
1001	0015	0013	
1002	0023	0021	
2000	0010	0008	
2001	0018	0016	
2007	0024		
2008	0025	0012	0020
2009	0026	0019	

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/ STRUCTURED SOURCE LISTING /

```
(001  ISN 0002            SUBROUTINE HEADG(ICASE)                                          00110220
                          CT HEADG      LAST UPDATE:   06/28/79 16:26:22                   00110230
                          CX HEADG  PRINTS A HEADING FOR THE PGF TITLES (FOR PRNT10)       00110240
                          C                                                                00110250
      ISN 0003            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),  00110270
                     B4   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),                 00110280
                     B4   3IPLOT(7),ITABLE,ITABS,NTABS                                     00110290
      ISN 0004            ITABS = ITABS + 1                                                00110305
      ISN 0005            IF(ICASE.EQ.1) WRITE(6,1000) ITABLE,ITABS,ITABS,NTABS,RNAME      00110310
      ISN 0007      1000  FORMAT('1'/'0',T3,'TABLE ',I2,'.',I2,'  POPULATION GROWTH FACTOR',  00110315
                     *' FOR EACH NET YEAR.( TABLE ',I2,' OF ',I2,' )',T110,5A4/'0')       00110320
      ISN 0008            IF(ICASE.EQ.2) WRITE(6,2000) ITABLE,ITABS,ITABS,NTABS,RNAME      00110325
      ISN 0010      2000  FORMAT('1'/'0',T3,'TABLE ',I2,'.',I2,'  POPULATION BY AREA TYPE',  00110330
                     *' FOR EACH NET YEAR.( TABLE ',I2,' OF ',I2,' )',T110,5A4/'0')       00110335
                          C                                                                00110340
      ISN 0011            CALL HEADER(10)                                                  00110350
                          C                                                                00110360
```

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      ISN 0012            WRITE(6,2008)                                                    00110370
      ISN 0013            IF(ICASE.EQ.1) WRITE(6,1001)                                     00110380
      ISN 0015      1001  FORMAT(' ',T4,'YEAR',T11,'VARIABLE',T48,'POP(YEAR)/POP(BASELINE)')  00110382
      ISN 0016            IF(ICASE.EQ.2) WRITE(6,2001)                                     00110384
      ISN 0018      2001  FORMAT(' ',T4,'YEAR',T11,'VARIABLE',T48,'POPULATION, IN MILLIONS')  00110386
      ISN 0019            WRITE(6,2009)                                                    00110410
      ISN 0020            WRITE(6,2008)                                                    00110420
      ISN 0021            WRITE(6,1002)                                                    00110430
      ISN 0022            RETURN                                                           00110435
                          C                                                                00110439
                          C ZE DO ALL FORMATS                                              00110440
                          C                                                                00110445
001)                      C
      ISN 0023      1002  FORMAT('+',112('_'))                                            00110450
      ISN 0024      2007  FORMAT('+','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')               00110460
      ISN 0025      2008  FORMAT(' ','|',T9,'|',T21,'|',T102,'|',T113,'|')               00110470
      ISN 0026      2009  FORMAT('+','|',T9,'|',T21,'|',T102,'|',T113,'|')               00110480
      ISN 0027            END                                                            00110490


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      26, PROGRAM SIZE =      950, SUBPROGRAM NAME = HEADG

*STATISTICS*  NO  DIAGNOSTICS GENERATED

)****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
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-/EL .-  (SL . /6)      HEADRSEM       -./36.  .JRTF   ( EX    .D          IATE    273.  .52.2          E
EQUESTED OPTI...: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

PTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                  NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
YMBOL   INTERNAL STATEMENT NUMBERS
        0015  0015  0015  0021  0021  0021  0024  0024  0024
EAD     0004  0004  0021  0024
SUB     0002  0008
ITLE    0003  0003  0008
EADER   0002


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
LABEL   DEFINED   REFERENCES
1003    0006      0005
1004    0009      0008
1005    0012      0011
1007    0016      0015
1010    0022      0021
1011    0025      0024
1013    0029      0019  0028
2006    0031      0014  0018  0020  0027
2007    0032      0017  0023  0026
2010    0033      0007
2011    0034      0010  0013


                                  / STRUCTURED SOURCE LISTING /
002  ISN 0002          SUBROUTINE HEADER(ISUB)
                       C BELONGS TO SINGLE EVENT MODEL                                    00112550
                       CX HEADER   PRINTS A HEADER FOR ALL POPULATION TABLES
                       C                                                                  00112565
     ISN 0003          REAL *8 TITLE(12)/'PRINT1  ','PRINT2  ','PRINT3  ','PRINT4  ',     00112575
                      *'PRINT5  ','PRINT6  ','PRINT7  ','PRINT8  ','PRINT9  ',            00112600
                      *'PRNT10  ','PRNT11  ','PRNT12  '/                                  00112620
                       C                                                                  00112640
     ISN 0004          REAL*8  HEAD(9,2)/'  OVER  ','  1000- ','  500-  ','  200-  ',     00112660
                      *'  100-  ','  50-   ','  25-   ','  5-    ','        ',            00112700
                      *2*'  2000  ','  1000  ','   500  ','   200  ','   100  ',          00112750
                      *'   50   ','   25   ',' RURAL  '/                                  00112800
     ISN 0005          WRITE(6,1003)                                                      00112850
     ISN 0006    1003  FORMAT(' ',112('_'))                                               00112900
     ISN 0007          WRITE(6,2010)                                                      00112950
     ISN 0008          WRITE(6,1004) TITLE(ISUB)                                          00113000
     ISN 0009    1004  FORMAT(' ',T48,'AREA TYPE,J',T86,'****',A8)                        00113050
     ISN 0010          WRITE(6,2011)                                                      00113100
     ISN 0011          WRITE(6,1005)                                                      00113150
     ISN 0012    1005  FORMAT(' ',T21,93('_'))                                            00113200
     ISN 0013          WRITE(6,2011)                                                      00113250
     ISN 0014          WRITE(6,2006)                                                      00113300
     ISN 0015          WRITE(6,1007)(J,J=1,9)                                             00113350
001)                   C                                                                  00113400
     ISN 0016    1007  FORMAT(' ',T20,9(I6,3X),T105,'ALL J')                              00113450
     ISN 0017          WRITE(6,2007)                                                      00113500
```

```
      ISN 0018          WRITE(6,2006)                                                  00113550
      ISN 0019          WRITE(6,1013)                                                  00113600
      ISN 0020          WRITE(6,2006)                                                  00113650
      ISN 0021          WRITE(6,1010)(HEAD(J,1),J=1,9)                                 00113700
002)                    C
      ISN 0022    1010  FORMAT(' ',T6,'PLACE SIZE,',T22,9(A8,1X))                      00113750
      ISN 0023          WRITE(6,2007)                                                  00113800
      ISN 0024          WRITE(6,1011)(HEAD(J,2),J=1,9)                                 00113850
      ISN 0025    1011  FORMAT(' ',T7,'THOUSANDS',T22,9(A8,1X))                        00113900
      ISN 0026          WRITE(6,2007)                                                  00113950
      ISN 0027          WRITE(6,2006)                                                  00114000
      ISN 0028          WRITE(6,1013)                                                  00114050
      ISN 0029    1013  FORMAT('+',112('_'))                                           00114100
      ISN 0030          RETURN                                                         00114150
      ISN 0031    2006  FORMAT(' ','|',T21,'|',9(8X,'|'),10X,'|')                      00114200
      ISN 0032    2007  FORMAT('+','|',T21,'|',9(8X,'|'),10X,'|')                      00114250
      ISN 0033    2010  FORMAT(' ','|',T21,'|',T102,'|',T113,'|')                      00114300
      ISN 0034    2011  FORMAT('+','|',T21,'|',T102,'|',T113,'|')                      00114350
      ISN 0035          END                                                            00114400

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF( NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      34, PROGRAM SIZE =     1150, SUBPROGRAM NAME =HEADER

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
```

```
LEVEL 2.2  (OCT 76.    HEADV                  OS/...  FOR   I H   NDEI          DA    0.2:   1.34          AGE

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
I       0009  0009  0009
IBEG    0003
HEADV   0002
ICONT   0003
IDUMP   0003
IPLOT   0003
ITABS   0003  0004  0004  0005  0005
JMASK   0003
KMASK   0003
NTABS   0003  0005
RNAME   0003  0005
IPRINT  0003
ITABLE  0003  0005
IVMASK  0003
METMSK  0003
MODMSK  0003


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 LABEL   DEFINED   REFERENCES
 7000    0006      0005
 8000    0010      0009
 8002    0013      0012
 8003    0016      0015
 8004    0019      0018
 8005    0021      0020
 8006    0024      0023
 8007    0028      0027
 8008    0032      0031
 8011    0033
 8012    0034      0008  0011  0014  0017  0022  0025  0030
 8013    0035      0007  0026  0029


                                        / STRUCTURED SOURCE LISTING /
(002  ISN 0002            SUBROUTINE HEADV                                                  00072300
                          CT HEADV      LAST UPDATE:                                        00072310
                          CX HEADV  PRINTS A HEADER FOR VEHICLE POPULATION TABLES           00072320
                          C                                                                 00072330
      ISN 0003            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),  00072800
                   B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),                   00072810
                   B4    3IPLOT(7),ITABLE,ITABS,NTABS                                       00072820
                          C                                                                 00072830
      ISN 0004            ITABS = ITABS + 1                                                 00073100
                          C                                                                 00073110
      ISN 0005            WRITE(6,7000)ITABLE,ITABS,ITABS,NTABS,RNAME                       00073200
      ISN 0006      7000  FORMAT('1'/'0',T3,'TABLE ',I2,'.',I2,T15,'VEHICLE POPULATION '     00073250
                         *,'BY TYPE, FOR EACH NET YEAR.',' ( TABLE ',I2,' OF ',I2,' )',     00073300
                         *T110,5A4/'0'/' ')                                                 00073310
```

```
      ISN 0007            WRITE(6,8013)                                                  00073520
      ISN 0008            WRITE(6,8012)                                                  00073540
      ISN 0009            WRITE(6,8000)(I,I=1,14)                                        00073600
(001)                     C
      ISN 0010      8000  FORMAT(' |TYPE>',T13,'|',14(I4,'   |'),T127,'TOTAL |')        00073700
      ISN 0011            WRITE(6,8012)                                                  00074100
      ISN 0012            WRITE(6,8002)                                                  00074200
      ISN 0013      8002  FORMAT(' |CYLINDERS',T13,'|',' 8  |  6  | 6&8 |  4  |',      00074300
                     *'  4  | 6&8 |     |     |     |     |',                           00074400
                     *'     |     |',7X,'|')                                           00074500
      ISN 0014            WRITE(6,8012)                                                  00074600
      ISN 0015            WRITE(6,8003)                                                  00074700
      ISN 0016      8003  FORMAT(' |ENGINE',T13,'|',6(' GAS |'),' DIESEL|',8('      |')) 00074800
      ISN 0017            WRITE(6,8012)                                                  00074900
      ISN 0018            WRITE(6,8004)                                                  00075000
      ISN 0019      8004  FORMAT(' |TRANS-  ',T13,'|',2(' AUTO- |'),' MAN-  |',' AUTO- |', 00075100
                     *' MAN- |',9('      |'),7X,'|')                                   00075200
      ISN 0020            WRITE(6,8005)                                                  00075300
      ISN 0021      8005  FORMAT(' |MISSION',T13,'|',2(' MATIC |'),' UAL  |',' MATIC |', 00075400
                     *' UAL  |',9(' ---- |'),7X,'|')                                   00075500
      ISN 0022            WRITE(6,8012)                                                  00075600
      ISN 0023            WRITE(6,8006)                                                  00075700
      ISN 0024      8006  FORMAT(' |VEH. TYPE>',T13,'|',3(' PC  |'),2(' PC&LT |'),     00075800
                     *' LT TRK| PC&LT |MED TRK|HVY TRK|IC BUS |TR BUS |SCH BUS|',     00075900
                     *'UM MTCY|MD MTCY|',7X,'|')                                       00076000
      ISN 0025            WRITE(6,8012)                                                  00076100
      ISN 0026            WRITE(6,8013)                                                  00076200
      ISN 0027            WRITE(6,8007)                                                  00076300
      ISN 0028      8007  FORMAT(' |',T13,'|',T85,'|',T109,'|',T133,'|'/' ',' UNIT',    00076400
                     *T13,'|',T50,'MILLIONS',T85,'|',T89,'TENS OF THOUSANDS',T109,      00076500
                     *'|',T116,'MILLIONS',T133,'|'/' |',T13,'|',T85,'|',T109,           00076600
                     *'|',T133,'|')                                                     00076610
      ISN 0029            WRITE(6,8013)                                                  00076700
      ISN 0030            WRITE(6,8012)                                                  00076800
      ISN 0031            WRITE(6,8008)                                                  00076900
      ISN 0032      8008  FORMAT('+|  YEAR')                                            00077000
                          C                                                            00077009
                          C   ZE FORMAT STATEMENTS                                     00077010
                          C                                                            00077011
      ISN 0033      8011  FORMAT('+|',T13,'|',15('      |'))                          00077020
      ISN 0034      8012  FORMAT(' |',T13,'|',15('      |'))                          00077040
      ISN 0035      8013  FORMAT('+',132('_'))                                        00077060
                          C                                                            00077080
      ISN 0036            RETURN                                                       00077100
002)                      C
      ISN 0037            END                                                          00077120
```

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 36, PROGRAM SIZE = 1498, SUBPROGRAM NAME = HEADV

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ******

126K BYTES OF CORE NOT USED

```
LEVEL 2.2 (SEPT 76)          IYBASSEM          OS/360 FORTRAN H EXTENDED          DATE 07.273/17.34.55          PAGE 1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
NAT     0003
NHT     0003
NSR     0003
NVT     0003
POP     0003
INCR    0003
MDUM    0002  0004
MILE    0003
MYRB    0003  0004
MYRN    0003
NIGD    0003
NLEV    0003
NYRN    0003
VTOT    0003
ALREG   0003
GVTOT   0003
IYBAS   0002  0004
MYREG   0003
MYRNET  0003
POPDEN  0003
POPLTN  0003
STOPGF  0003
TOTPOP  0003


                                        / STRUCTURED SOURCE LISTING /
(001  ISN 0002            FUNCTION  IYBAS(MDUM)
                          C BELONGS TO SINGLE EVENT MODEL
                          CX IYBAS CONVERTS YEAR IN STANDARD NOTATION TO YR WRT BASELINE
                          C
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                     B2   2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                     B2   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                     B2   4NIGD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
      ISN 0004            IYBAS=MDUM-MYRB+1
      ISN 0005            RETURN
                          C       DEBUG SUBCHK
001)                      C
      ISN 0006            END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =        5, PROGRAM SIZE =      278, SUBPROGRAM NAME = IYBAS

*STATISTICS*  NO  DIAGNOSTICS GENERATED
```

****** END OF COMPILATION ******

1264 BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL STATEMENT NUMBERS		
A	0003		
I	0003	0004	0004
IT	0003		
X2	0003		
ADT	0003		
ALO	0003		
CZD	0003		
DBK	0003		
IYR	0002	0004	
MYR	0003		
PGF	0003		
VAF	0003		
VGF	0003		
VML	0003		
AREA	0003		
IVAF	0003		
IVBD	0003	0004	
IVGF	0003		
IYES	0002	0004	
JPGF	0003		
LANE	0003		
LIFE	0003		
MYRE	0003	0004	
NPMK	0003		
PGFO	0003		
REMO	0003		
VINC	0003		
VPOP	0003		
XINC	0003		
YINC	0003		
BVPOP	0003		
JMYLE	0003		
MYREF	0003	0004	
VBD74	0003		
VBD77	0003		
VBD85	0003		
VBD90	0003		
WIDTH	0003		
FPAREA	0003		
FPROAD	0003		
IEQAGE	0003		
NPMILE	0003		

C-147

/ STRUCTURED SOURCE LISTING /

```
0001  ISN 0002          FUNCTION  IYES(IYR)                                    00069200
                        C BELONGS TO SINGLE EVENT MODEL
                        CX IYES   CONVERTS YEAR WRT REFERENCE TO YEARS ART MYRE 00069220
                        C                                                      00069230
```

```
     ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),        00069400
                  B1   2VINC(7),VBD74(14),VBD77(7),VBD65(7),VBD90(7),                          00069410
                  B1   3VML(14,4,5),A(2,3),DBK(3),CZD(9,6),PGF(5),                             00069420
                  B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                               00069430
                  B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                           00069440
                  B1   6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALU,IVAF(14),                        00069450
                  B1   7MYREF(6),IVBD(14),LIFE(4),IEGAGE(6),JHYLE(9,4),                        00069460
                  B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I                           00069470
     ISN 0004          IYES=IYR-MYRE(I)+MYREF(IVBD(I))                                        00069800
     ISN 0005          RETURN                                                                 00069900
                       C        DEBUG SUBCHK                                                  00070000
001)                   C
     ISN 0006          END                                                                    00070100

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       5, PROGRAM SIZE =      288, SUBPROGRAM NAME =  IYES

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

```
EVEN   ?  (     76'   IY ..FSE...      OS/2    FOR   H F  NDEC          DA   0.21   1.35          AGE
REQUESTED   IONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,  BJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
A       0003
I       0003  0004
IT      0003
X2      0003
ADT     0003
ALO     0003
CZO     0003
DBK     0003
MYR     0003
PGF     0003
VAF     0003
VGF     0003
VML     0003
AREA    0003
IVAF    0003
IVBD    0003  0004
IVGF    0003
JPGF    0003
LANE    0003
LIFE    0003
MDUM    0002  0004
MYRE    0003
NPMK    0003
PGFO    0003
REMO    0003
VINC    0003
VPOP    0003
XINC    0003
YINC    0003
BVPOP   0003
IYREF   0002  0004
JWYLE   0003
MYREF   0003  0004
VBD74   0003
VBD77   0003
VBD85   0003
VBD90   0003
WIDTH   0003
FPAREA  0003
FPROAD  0003
IEQAGE  0003
NPMILE  0003


                                    / STRUCTURED SOURCE LISTING /
(001  ISN 0002          FUNCTION  IYREF(MDUM)                                                  00066500
                        C BELONGS TO SINGLE EVENT MODEL
                        CX IYREF   CONVERTS STANDARD YEAR TO YR WRT REFERENCE YEAR (MYREF)      00066520
                        C                                                                       00066530
```

```
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),          00066700
                     B1   2V1NC(7),VB074(14),VB077(7),VB085(7),VB090(7),                          00066710
                     B1   3VML(14,4,5),A(2,3),OBK(3),CZD(9,6),PGF(5),                            00066720
                     B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),                              00066730
                     B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPUP(14),                          00066740
                     B1   6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),                       00066750
                     B1   7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),                       00066760
                     B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I                          00066770
      ISN 0004            IYREF=MDUM-MYREF(IVBD(I))+1                                           00067100
                          C       DEBUG SUBCHK                                                  00067200
      ISN 0005            RETURN                                                                00067300
001)                      C
      ISN 0006            END                                                                   00067400


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =       5, PROGRAM SIZE =      282, SUBPROGRAM NAME = IYREF

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS								
A	0003								
I	0003								
J	0008								
V	0005								
IM	0002	0009	0010	0012					
IT	0003								
K8	0008								
X2	0003								
ADT	0003								
ALO	0003								
COC	0007								
CZD	0003								
DBK	0003								
IBG	0012	0014	0016						
IFM	0008								
IIM	0009	0010	0020	0022	0022	0024	0024	0025	0025
KDB	0013	0014	0016	0020	0021	0022	0022		
KOM	0007								
MYR	0003								
NAT	0004								
NHT	0004								
NSR	0004								
NVT	0004								
PGF	0003								
POP	0004								
VAF	0003								
VGF	0003								
VML	0003								
ACCM	0008								
ACEV	0008								
ADBL	0007								
AREA	0003								
EDGE	0005								
FIMP	0007								
FRTN	0007								
GAMM	0005								
IBEG	0006	0012							
IBIN	0017	0018	0018	0018	0019	0020	0020	0023	0024	0024
IEVB	0008								
IMSG	0008								
INCR	0004								
IPEN	0005								
IVAF	0003								
IVBD	0003								
IVGF	0003								
IYRN	0008	0020	0022	0022	0024	0024	0025	0025	
JCOC	0007								
JFLO	0005								
JPGF	0003								

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS							
KFLO	0005							
KPER	0005							
LANE	0003							
LIFE	0003							
MILE	0004							
MYRB	0004							
MYRE	0003							
MYRN	0004							
NADB	0007							
NIDD	0004							
NLEV	0004							
NPMK	0003							
NRDB	0007							
NTRN	0004							
PACT	0007							
PGFO	0003							
RDBL	0007							
REMO	0003							
REPZ	0005							
VINC	0003							
VPOP	0003							
VTOT	0004							
XINC	0003							
YINC	0003							
ACLWP	0008	0018	0018	0018	0019	0019	0019	0020
ALREG	0004							
AVDBL	0007							
BVPOP	0003							
DLLEV	0007							
DLPSI	0007							
GVTOT	0004							
ICONT	0006							
IDUMP	0006							
IFIMP	0007							
INOUT	0007							
IPACT	0007							
IPLOT	0006							
ITABS	0006							
JMASK	0006							
JMYLE	0003							
KMASK	0006							
MYREF	0003							
MYREG	0004							
NTABS	0006							
PLDER	0007							
PNORM	0008							
RATIO	0007							
REDGE	0005							
RNAME	0006							
SHIFT	0007							
VBD74	0003							
VBD77	0003							
VBDB5	0003							
VBD90	0003							
VNTDB	0008	0020	0022	0022	0024	0024	0025	0025

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                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
WIDTH   0003
DJKLEV  0007
DRATIO  0007
EDGEPZ  0005
EVPROB  0007
FLUMIX  0005
FPAREA  0003
FPROAD  0003
IEQAGE  0003
IPRINT  0006
ITABLE  0006
IVMASK  0006
KDBIBG  0016  0018  0019  0019  0019  0020
KSJEVB  0008
METMSK  0006
METRIC  0007
MODMSK  0006
MYRNET  0004
NORMAL  0002
NPMILE  0003
PERCNT  0005
POPDEN  0004
POPLTN  0004
RDBCUT  0007
RDBEDG  0007
SEPROB  0007
STOPGF  0004
TOTPOP  0004
VNTDAY  0008
VNTNIT  0008
WDTHPZ  0005

                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
 LABEL   DEFINED   REFERENCES
  500    0020      0013  0017
  600    0022      0021
  700    0025
  800    0024      0023

                                        / STRUCTURED SOURCE LISTING /
(005  ISN 0002          SUBROUTINE NORMAL(IM)
                        C
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                  B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                  B1   3VML(14,4,5),A(2,3),DBK(3),CZD(9,6),PGF(5),
                  B1   4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                  B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                  B1   6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
                  B1   7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JWYLE(9,4),
                  B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
                        C
                        C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                        C
```

```
      ISN 0004          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                  B2   2POPDEN(4,9),POPLIN(4,9),STOPGF(9,9),TOTPOP(9),
                  B2   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                  B2   4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                       C
                       C END PRINT  COMMON BLOCK
                       C
      ISN 0005          COMMON /BIG003/ GAMM(6,9),V(5),EDGE(4,9),EDGEPZ(4,9,6),
                  B3   2WDTHPZ(4,9),FLOMIX(14,4,5),PERCNT(4,2,4),
                  B3   3REPZ(4,9,6,4),REDGE(4,9,6,4),
                  B3   4JFLO(9),KFLO(6),KPER(6),IPER(14)
      ISN 0006          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                  B4   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                  B4   3IPLOT(7),ITABLE,ITABS,NTABS
                       C
      ISN 0007          COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),
                  B5   2PLDEN(4,9,6,5,4),SEPROB(4,9,6,6,5),
                  B5   3RDBEDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLPSI(9,6,4),
                  B5   4METRIC(20,7,2),DJKLEV(9,6,4,2),DLLEV(5,2),
                  B5   5PACT(5,2),FRTN(2),COC(7),EVPROB(14,9,6),
                  B5   6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),
                  B5   7IFIMP(7),JCOC(7),INOUT(7),KOM(7),NADB,NRDB
                       C
      ISN 0008          COMMON/BIG006/PNORM(3,2,4),ACEV(6,9),IYRN,IFM,
                  B6   1ACCM(20,2),VNTDAY,VNTNIT,IEVB(6,9),KS,J,
                  B6   2VNTDB(15,11,5,9),ACLWP(15,21),KSJEVB,IM56
      ISN 0009          IIM=IM
      ISN 0010          IF(IM.EQ.7) IIM=5
      ISN 0012          IBG=IBEG(IM)
      ISN 0013          DO 500 KDB=1,11
(004  ISN 0014          IF(KDB.EQ.11) IBG=10
      ISN 0016          KDBIBG=KDB+IBG
      ISN 0017          DO 500 IBIN=1,15
(001  ISN 0018          ACLWP(IBIN,21)=ACLWP(IBIN,21)+ACLWP(IBIN,KDBIBG)
      ISN 0019          ACLWP(15,KDBIBG)=ACLWP(15,KDBIBG)+ACLWP(IBIN,KDBIBG)
      ISN 0020     500  VNTDB(IBIN,KDB,IIM,IYRN)=ACLWP(IBIN,KDBIBG)
 001)                  C
 004)                  C
      ISN 0021          DO 600 KDB=1,10
(003  ISN 0022     600  VNTDB(15,KDB,IIM,IYRN)=VNTDB(15,KDB,IIM,IYRN)/2.
 003)                  C
      ISN 0023          DO 800 IBIN=1,14
(002  ISN 0024     800  VNTDB(IBIN,11,IIM,IYRN)=VNTDB(IBIN,11,IIM,IYRN)/2.
 002)                  C
      ISN 0025     700  VNTDB(15,11,IIM,IYRN)=VNTDB(15,11,IIM,IYRN)/12.
      ISN 0026          RETURN
 005)                  C
      ISN 0027          END
```

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```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(1)

*STATISTICS*     SOURCE STATEMENTS =      26, PROGRAM SIZE =      848, SUBPROGRAM NAME =NORMAL

*STATISTICS*  NO  DIAGNOSTICS GENERATED
```

****** END OF COMPILATION ******

118K BYTES OF CORE NOT USED

```
 LEVEL 2,2  (SEPT 76)   PRT1SEM          OS/360  FORTRAN H EXTENDED          DATE 80.273/19.37.34       PAGE   1

 REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

 OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                    NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                          *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
 SYMBOL  INTERNAL STATEMENT NUMBERS
 XLINE   0003  0006  0008
 PRINT1  0002


                          *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
  LABEL   DEFINED   REFERENCES
    98     0011      0006
    99     0006      0010
   100     0007      0006
   101     0009      0008
   103     0005      0004


                                                / STRUCTURED SOURCE LISTING /
 (002  ISN 0002              SUBROUTINE PRINT1                                                    00071600
                             C BELONGS TO SINGLE EVENT MODEL
                             CX PRINT1   PRINTS A HEADING FOR THE RUN (TITLE PAGE)                00071620
                             C                                                                    00071630
       ISN 0003              DIMENSION XLINE(18)                                                  00071640
       ISN 0004              WRITE(6,103)                                                         00071650
       ISN 0005      103     FORMAT('1'/'0'/'0'/'0')                                              00071660
 (001  ISN 0006      99      READ(4,100,END=98)XLINE                                              00071690
       ISN 0007      100     FORMAT(18A4)                                                         00071700
       ISN 0008              WRITE(6,101)XLINE                                                    00071710
       ISN 0009      101     FORMAT(' ',30X,18A4)                                                 00071720
       ISN 0010              GO TO 99                                                             00071730
  001)                       C
       ISN 0011      98      RETURN                                                               00071740
  002)                       C
       ISN 0012              END                                                                  00071750


 *OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

 *OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

 *STATISTICS*      SOURCE STATEMENTS =       11, PROGRAM SIZE =       378, SUBPROGRAM NAME =PRINT1

 *STATISTICS*  NO  DIAGNOSTICS GENERATED

 ****** END OF COMPILATION ******                                  126K BYTES OF CORE NOT USED
```

LEVEL 4.2 (SEPT 76) OS/360 FORTRAN H EXTENDED DATE 00.273/17.38.1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTAT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTAT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS													
J	0015	0015	0015	0024	0025	0025	0025	0031	0031	0031				
NAT	0003													
NMT	0003													
NSK	0003													
NVT	0003													
POP	0003	0025												
IBEG	0004													
INCR	0003													
IYRN	0010	0011	0012	0012	0015	0018	0018	0023	0025	0027	0028	0028	0034	0034
MILE	0003													
MYRB	0003													
MYRN	0003													
NIDD	0003													
NLEV	0003													
VYRN	0003	0008	0010	0018	0023	0034								
VTOT	0003													
YEAR	0005	0011	0015	0027	0031									
ALREG	0003													
GVTOT	0003													
LHEADG	0012	0028												
ICONT	0004													
IDUMP	0004													
IPLOT	0004													
ITABS	0004	0009	0022											
JMASK	0004													
KMASK	0004													
MYREG	0003													
NTABS	0004	0008												
RNAME	0004													
IPRINT	0004													
ITABLE	0004	0007	0007	0021	0021									
IVMASK	0004													
METMSK	0004													
MODMSK	0004													
MYRNET	0003	0011	0027											
POPDEN	0003													
POPLTN	0003													
PRNT10	0002													
STOPGF	0003	0015	0025											
STOPOP	0006	0025	0031											
TOTPOP	0003													

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1003	0020	0010
1004	0016	0015
2003	0036	0025
2004	0026	0024

```
                    *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
LABEL   DEFINED   REFERENCES
2005    0032      0031
2006    0038      0014  0030
2007    0039      0017  0033
2010    0040      0018  0034


                                        / STRUCTURED SOURCE LISTING /
(004  ISN 0002            SUBROUTINE PRNT10
                          C BELONGS TO SINGLE EVENT MODEL
                          CX PRNT10  PRINTS THE POPULATION GROWTH FACTOR
                          C
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                     B2   2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                     B2   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                     B2   4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
      ISN 0004            COMMON /BIG004/ KNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                     B4   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                     B4   3IPLOT(7),ITABLE,ITABB,NTABS
                          C
      ISN 0005            INTEGER YEAR
      ISN 0006            DIMENSION STOPOP(9)
                          C
                          C PRINT POPULATION GROWTH FACTOR
                          C
      ISN 0007            ITABLE  = ITABLE + 1
      ISN 0008            NTABS   = (NYRN - 1) / 20 + 1
      ISN 0009            ITABS   = 0
                          C
      ISN 0010            DO 1003 IYRN=1,NYRN
                          C
(003  ISN 0011            YEAR=MYRNET(IYRN)
      ISN 0012            IF(IYRN.EQ.1.OR.IYRN.EQ.21)    CALL HEADG(1)
      ISN 0014            WRITE(6,2006)
      ISN 0015            WRITE(6,1004)YEAR,(STOPGF(J,IYRN),J=1,9)
C--------
      ISN 0016  1004        FORMAT(' ',I4,I4,T23,9(F6.2,3X))
      ISN 0017              WRITE(6,2007)
      ISN 0018              IF(IYRN.EQ.20.OR.IYRN.EQ.NYRN) WRITE(6,2010)
                            C
C--------
      ISN 0020  1003    CONTINUE
                        C
 003)                   C
      ISN 0021          ITABLE  = ITABLE + 1
      ISN 0022          ITABS   = 0
                        C
      ISN 0023          DO 2003 IYRN=1,NYRN
                        C
(002  ISN 0024          DO 2004 J=1,9
                        C
(001  ISN 0025          STOPOP(J) = STOPGF(J,IYRN) * POP(J)
                        C
      ISN 0026  2004    CONTINUE
                        C
 001)                   C
```

```
      ISN 0027            YEAR=INTRNET(IYRN)
      ISN 0028            IF(IYRN.EQ.1.OR.IYRN.EQ.21)    CALL HEADG(2)
      ISN 0030            WRITE(6,2006)
      ISN 0031            WRITE(6,2005)YEAR,(STOPOP(J),J=1,9)
C--------
      ISN 0032      2005     FORMAT(' ',I4,I4,T23,9(-6PF6.2,3X))
      ISN 0033               WRITE(6,2007)
      ISN 0034               IF(IYRN.EQ.20.OR.IYRN.EQ.NYRN) WRITE(6,2010)
                             C
C--------
      ISN 0036      2003  CONTINUE
 002)                      C
      ISN 0037            RETURN
                          C ZE DO ALL FORMATS
 004)                     C
      ISN 0038      2006  FORMAT(' ','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')
      ISN 0039      2007  FORMAT(!+!,!|!,T9,'|',T21,'|',9(8X,'|'),10X,'|')
      ISN 0040      2010  FORMAT(' ','|',T9,'|',T21,'|',9(8X,'|'),10X,'|'/'+',112('_'))
      ISN 0041            END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =       40, PROGRAM SIZE =      1036, SUBPROGRAM NAME =PRNT10

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS											
A	0003											
I	0003	0017	0018	0018	0019							
IT	0003											
X2	0003											
ADT	0003											
ALO	0003											
CZD	0003											
DBK	0003											
MYR	0003	0010	0011	0011	0011	0013	0013	0013	0015	0022	0024	0024	0024
NAT	0004											
NHT	0004											
NBR	0004											
NVT	0004											
PGF	0003											
POP	0004											
SUM	0016	0019	0019	0022								
VAF	0003											
VBD	0018											
VGF	0003											
VHL	0003											
AREA	0003											
IBEG	0005											
INCR	0004											
IVAF	0003											
IVBD	0003											
IVGF	0003											
JPGF	0003											
LANE	0003											
LIFE	0003											
MILE	0004											
MYRB	0004											
MYRE	0003											
MYRN	0004											
NIDD	0004											
NLEV	0004											
NPMK	0003											
NUMS	0007	0007	0013									
NYRN	0004											
PGFO	0003											
REMO	0003											
VBDS	0006	0018	0019	0022								
VINC	0003											
VPOP	0003											
VTOT	0004											
XINC	0003											
YINC	0003											
ALREG	0004											
GVPOP	0003											
GVTOT	0004											

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*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS					
ICONT	0005					
IDUMP	0005					
IPLOT	0005					
ITABS	0005	0009	0011	0011	0013	0013
JMASK	0005					
JWYLE	0003					
KMASK	0005					
MODYR	0015					
MYREF	0003					
MYREG	0004					
NTABS	0005					
RNAME	0005					
VBD74	0003					
VBD77	0003					
VBD85	0003					
VBD90	0003					
WIDTH	0003					
FPAREA	0003					
FPROAD	0003					
IEQAGE	0003					
IPRINT	0005					
ITABLE	0005	0008	0008	0013		
IVMASK	0005					
METMSK	0005					
MODMSK	0005					
MYRNET	0004					
NPMILE	0003					
POPDEN	0004					
POPLTN	0004					
PRNT11	0002					
STOPGF	0004					
TOTPOP	0004					

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1000	0026	0010
1001	0020	0017
7000	0026	0013
7001	0029	0024
7002	0030	0022
7003	0031	0021
7004	0032	0023

/ STRUCTURED SOURCE LISTING /

```
(003  ISN 0002          SUBROUTINE PRNT11
                        C BELONGS TO SINGLE EVENT MODEL
                        CX PRNT11  PRINTS THE STORED VEHICLE BREAKDOWN FUNCTION
                        C
      ISN 0003          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                     B1 2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                     B1 3VML(14,4,5),A(2,3),DBK(3),C2D(9,6),PGF(5),
                     B1 4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                     B1 5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
```

```
                B1    6X2(9,6,4),APMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
                B1    7MYREF(6),IVBD(14),LIFE(4),IEGAGE(6),JMYLE(9,4),
                B1    8JPGF(9),LAKE(9,6),MYRE(14),IVGF(14),MYR,IT,I
     ISN 0004          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VIOF(14,9),PUP(9),
                B2    2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPUP(9),
                B2    3MILE(6,9,4,5),MYREG(6,4,14),ALEV(14,4),MYRNET(9),
                B2    4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                      C
     ISN 0005          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                B4    3IPLOT(7),ITABLE,ITABS,NTABS
                      C
     ISN 0006          DIMENSION VBDS(7)
     ISN 0007          INTEGER NUMS(7) /1,2,3,4,5,6,7/
                       C
     ISN 0008          ITABLE=ITABLE+1
     ISN 0009          ITABS=0
                       C
                       C SET UP COMPREHENSIVE DO LOOP
                       C
     ISN 0010          DO 1000 MYR = 1957,2013
                       C
(002 ISN 0011          IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)
                      *ITABS = ITABS + 1
     ISN 0013          IF(MYR.EQ.1957.OR.MYR.EQ.1976.OR.MYR.EQ.1996)
                      *WRITE(6,7000) ITABLE,ITABS,ITABS,NUMS
                       C
     ISN 0015          MODYR = MYR
     ISN 0016          SUM = 0.0
                       C
     ISN 0017          DO 1001 I = 1,7
                       C
(001 ISN 0018          VBDS(I) = VBD(I)
     ISN 0019          SUM = SUM + VBDS(I)
                       C
     ISN 0020    1001  CONTINUE
                       C
001)                   C
     ISN 0021          WRITE(6,7003)
     ISN 0022          WRITE(6,7002) MYR,VBDS,SUM
     ISN 0023          WRITE(6,7004)
                       C
     ISN 0024          IF(MYR.EQ.1975.OR.MYR.EQ.1995.OR.MYR.EQ.2013)
                      *WRITE(6,7001)
                       C
     ISN 0026    1000  CONTINUE
                       C
002)                   C
     ISN 0027          RETURN
                       C
                       C  FORMAT STATEMENTS
                       C
003)                   C
     ISN 0028    7000  FORMAT('1'/'0   TABLE ',I2,'.',I2,'    LIGHT VEHICLE BREAKDOWN',
                      *' RATIOS FOR 1957-2013.(TABLE ',I2,' )'/'0'/
                 L0   *' ',91('_')/' ','|',T20,'|',T83,'|',T92,'|'/
                 L1   *' |',T20,'|',T71,'*****PRNT11',T83,'|',T92,'|'/
                 L2   *' ',T8,'VEHICLE'/'*|',T20,'|',T83,'|',T92,'|'/'*',T20,64('_')/
```


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```
                L3    *' ',T8,'TYPE  >',T24,7(I2,7X)/'+|',T20,9('|',8(' '))/
                L3-4  *'+',T20,64('_')/' |',T20,'|',T83,'|',T92,'|'/
                L4    *' ',T8,'MODEL YEAR',T40,'VEHICLE BREAKDOWN,',
                L5    *' VOD(I),',T85,'SUM'/'+|',T20,'|',T83,'|',T92,'|'/
                L6    *' |                V',T20,'|',T83,'|',T92,'|'/'+',91('_'))
     ISN 0029   7001  FORMAT(' |',T20,'|',8(8(' '),'|')/'+',91('_'))
     ISN 0030   7002  FORMAT(' ',T15,I4,T21,8(F7.4,2X))
     ISN 0031   7003  FORMAT(' |',T20,'|',8(8(' '),'|'))
     ISN 0032   7004  FORMAT('+|',T20,'|',8(8(' '),'|'))
     ISN 0033         END

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT, GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =      32, PROGRAM SIZE =     1270, SUBPROGRAM NAME *PRNT11

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  116K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T-R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS			
NAT	0003			
NHT	0003			
NSR	0003			
NVT	0003			
POP	0003			
IBEG	0004			
INCR	0003			
MILE	0003			
MYRB	0003			
MYRN	0003			
NIDD	0003			
NLEV	0003			
NYRN	0003	0008		
VTOT	0003			
ALREG	0003			
GVTOT	0003			
ICONT	0004	0008		
IDUMP	0004	0008		
IPLOT	0004			
ITABS	0004			
JMASK	0004	0008		
KMASK	0004	0008		
MYREG	0003			
NTABS	0004			
RNAME	0004	0008		
IPRINT	0004	0008		
ITABLE	0004	0005	0005	0006
IVMASK	0004	0008		
METMSK	0004	0008		
MODMSK	0004	0008		
MYRNET	0003	0008		
POPDEN	0003			
POPLTN	0003			
PRINT2	0002			
STOPGF	0003			
TOTPOP	0003			

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
999	0007	0006
1001	0009	0008

/ STRUCTURED SOURCE LISTING /

```
0001  ISN 0002          SUBROUTINE  PRINT2
                       C BELONGS TO SINGLE EVENT MODEL
                       Cx PRINT2  PRINTS THE CONTROL STRINGS
                       C
```

```
ISN 0003          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
            B2   2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
            B2   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
            B2   4NIDD(9),MYRN,INCR,MYRB,MYRN,NVT,NAT,NHT,NSR
ISN 0004          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
            B4   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
            B4   3IPLOT(7),ITABLE,ITABS,NTABS
ISN 0005          ITABLE = ITABLE + 1
ISN 0006          WRITE(6,999) ITABLE
ISN 0007    999   FORMAT('1'/' ','  TABLE ',I2,'  LISTING OF CONTROL STRINGS',
                 C' AND NET YEARS')
ISN 0008          WRITE(6,1001) RNAME,IVMASK,KMASK,JMASK,METMSK,
                 *MODMSK,IPRINT,IDUMP,ICONT,NYRN,MYRNET
ISN 0009   1001   FORMAT(  '0RNAME     :',5A4/' IVMASK    :',14I1/' KMASK     :',6I1/
                 *' JMASK     :',9I1/' METMSK    :',7I1/' MODMSK    :',3I1/
                 *' IPRINT    :',12I1/' IDUMP     :',12I1/' ICONT     :',12I1/
                 *' NYRN      :',I2/' MYRNET-1 :',10(I4,',')/
                 *' MYRNET-2 :',10(I4,',')/' MYRNET-3 :',10(I4,',')/
                 *' MYRNET-4 :',10(I4,','))
ISN 0010          RETURN
001)              C
ISN 0011          END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      10, PROGRAM SIZE =      770, SUBPROGRAM NAME =PRINT2

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    126K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(4AX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																		
J	0019	0019	0019	0039	0040	0041	0044	0044	0044	0051	0051	0051	0068	0069	0071	0074	0074	0074	0076
	0076	0076	0077	0080	0080	0080	0087	0088	0091	0091	0091								
K	0066	0069	0074	0080															
L	0073	0074																	
ID	0017	0019	0019	0036	0040	0044	0044	0072	0074										
NAT	0003	0039	0051	0068	0080	0087	0091												
NHT	0003	0066																	
NSR	0003	0073																	
NVT	0003																		
POP	0003	0041	0051																
IBEG	0004																		
INCR	0003																		
MILE	0003	0074																	
MSUM	0086	0088	0088	0091															
MYRB	0003																		
MYRN	0003																		
NIDD	0003																		
NLEV	0003																		
VYRN	0003																		
VTOT	0003																		
ALREG	0003																		
GTPOP	0037	0041	0041	0051															
GVTOT	0003																		
ICONT	0004																		
IDUMP	0004																		
IPLOT	0004																		
ITABS	0004	0007	0008	0025	0025	0026													
JMASK	0004																		
JMILE	0005	0069	0076	0076	0088	0091													
KMASK	0004																		
KMILE	0067	0077	0077	0080															
MYREG	0003																		
NTABS	0004																		
POPID	0038	0040	0040	0044															
RNAME	0004	0006	0026	0057															
HEADER	0010	0028	0059																
IPRINT	0004																		
ITABLE	0004	0006	0006	0008	0026	0056	0056	0057											
IVMASK	0004																		
METMSK	0004																		
MILEJK	0005	0071	0074	0074	0076	0077	0080												
MOOMSK	0004																		
MYRMET	0003																		
POPDEN	0003	0019																	
POPLIN	0003	0040	0044																
PRINTS	0002																		
STOPGF	0003																		
TOTPOP	0003																		

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES								
1000	0009	0008								
1001	0027	0026								
1002	0058	0057								
2001	0013	0012								
2002	0035	0016	0024	0034	0049	0055	0065	0085	0095	
2003	0022	0017								
2004	0020	0019								
2006	0097	0018	0023	0043	0048	0050	0054	0079	0084	0090	0094
2007	0098	0021	0046	0053	0082	0093				
2008	0099	0011	0015	0029	0035	0060	0064			
2009	0100	0014	0032	0063						
2201	0083	0066								
2202	0076	0068								
2203	0081	0080								
2204	0062	0061								
2300	0089	0087								
2301	0092	0091								
2305	0075	0072	0073							
3001	0031	0030								
3003	0047	0036								
3004	0045	0044								
3005	0042	0039								
3007	0052	0051								

/ STRUCTURED SOURCE LISTING /

```
(009  ISN 0002            SUBROUTINE PRINT3
                          C BELONGS TO SINGLE EVENT MODEL
                          CX PRINT3  TABULATES BASELINE POPULATION, POP. DENSITY AND JK MILEAGE
                          C
                          C THIS SUBROUTINE PRINTS OUT CONSTANT DATA BY AREA TYPE, J.
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVIOI(9),VIOT(14,9),POP(9),
                     82   2POPDEN(4,9),POPLIN(4,9),STOPGF(9,9),IOIPOP(9),
                     82   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                     82   4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                     84   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IDEG(7),
                     84   3IPLOT(7),ITABLE,ITABS,NTABS
      ISN 0005            DIMENSION MILEJK(9),JMILE(9)
                          C
                          C NOW PRINT THE BASELINE POPULATION DENSITIES BY J AND ID
                          C
      ISN 0006            ITABLE=ITABLE+1
      ISN 0007            ITABS=1
      ISN 0008            WRITE(6,1000)ITABLE,ITABS,RNAME
      ISN 0009       1000 FORMAT('1'/'0'/' ',T3,'TABLE',I2,'.',I2,'  BASELINE POPULATION ',
                         *'DENSITY BY AREA AND DENSITY TYPE.',T110,5A4/'0')
      ISN 0010            CALL HEADER(3)
      ISN 0011            WRITE(6,2008)
      ISN 0012            WRITE(6,2001)
      ISN 0013       2001 FORMAT(' ',T4,' ID ',T11,'VARIABLE',T48,'POPULATION  DENSITY,IN T
                         CHOUSANDS PER SQ.MI.')
      ISN 0014            WRITE(6,2009)
      ISN 0015            WRITE(6,2008)
      ISN 0016            WRITE(6,2002)
      ISN 0017            DO 2003 ID=1,4
```

```
(008  ISN 0018            WRITE(6,2006)
      ISN 0019            WRITE(6,2004)ID,(POPDEN(ID,J),J=1,9)
      ISN 0020      2004  FORMAT(' ',I4,I4,T23,9(-3PF6.2,3X))
      ISN 0021            WRITE(6,2007)
      ISN 0022      2003  CONTINUE
 008)                     C
      ISN 0023            WRITE(6,2006)
      ISN 0024            WRITE(6,2002)
                          C
                          C NOW PRINT THE BASELINE POPULATION BY AREA AND DENSITY TYPE
                          C
      ISN 0025            ITABS=ITABS+1
      ISN 0026            WRITE(6,1001)ITABLE,ITABS,RNAME
      ISN 0027      1001  FORMAT('1'/'0'/' ',T3,'TABLE',I2,'.',I2,'  BASELINE POPULATION, ',
                         *'BY AREA AND DENSITY TYPE',T110,5A4/'0'/'0')
      ISN 0028            CALL HEADER(3)
      ISN 0029            WRITE(6,2008)
      ISN 0030            WRITE(6,3001)
      ISN 0031      3001  FORMAT(' ',T4,' ID ',T11,'VARIABLE',T48,'POPULATION, MILLIONS',
                        CT105,'TOTAL')
      ISN 0032            WRITE(6,2009)
      ISN 0033            WRITE(6,2008)
      ISN 0034            WRITE(6,2002)
      ISN 0035      2002  FORMAT('+',112('_'))
                          C
      ISN 0036            DO 3003 ID = 1,4
                          C
(007  ISN 0037            GTPOP = 0.0E0
      ISN 0038            POPID = 0.0E0
      ISN 0039            DO 3005 J = 1,NAT
                          C
 (004 ISN 0040            POPID = POPID + POPLTN(ID,J)
      ISN 0041            GTPOP = GTPOP + POP(J)
                          C
      ISN 0042      3005  CONTINUE
                          C
 004)                     C
      ISN 0043            WRITE(6,2006)
      ISN 0044            WRITE(6,3004)ID,(POPLTN(ID,J),J=1,9),POPID
      ISN 0045      3004  FORMAT(' ',T4,I4,T23,9(-6PF6.2,3X),-6PF8.2)
      ISN 0046            WRITE(6,2007)
      ISN 0047      3003  CONTINUE
 007)                     C
      ISN 0048            WRITE(6,2006)
      ISN 0049            WRITE(6,2002)
      ISN 0050            WRITE(6,2006)
      ISN 0051            WRITE(6,3007)(POP(J),J=1,NAT),GTPOP
(006  ISN 0052      3007  FORMAT(' ',T11,'TOTAL',T23,9(-6PF6.2,3X),-6PF8.2)
      ISN 0053            WRITE(6,2007)
      ISN 0054            WRITE(6,2006)
      ISN 0055            WRITE(6,2002)
                          C
                          C NOW PRINT THE JK MILEAGE TABLE
                          C
      ISN 0056            ITABLE=ITABLE+1
      ISN 0057            WRITE(6,1002)ITABLE,RNAME
      ISN 0058      1002  FORMAT('1'/'0'/' ',T3,'TABLE',I2,'  MILEAGE OF ROADWAY BY AREA',
                         *' AND ROADWAY TYPE.',T110,5A4/'0'/'0')
```

```
      ISN 0059            CALL HEADER(5)
      ISN 0060            WRITE(6,2008)
      ISN 0061            WRITE(6,2204)
      ISN 0062      2204  FORMAT(' ',T4,' K  ',T48,' MILES OF ROADWAY')
      ISN 0063            WRITE(6,2009)
      ISN 0064            WRITE(6,2008)
      ISN 0065            WRITE(6,2002)
      ISN 0066            DO 2201 K=1,KMT
      ISN 0067            KMILE=0
      ISN 0068            DO 2202 J=1,NAT
(003  ISN 0069            IF(K.EQ.1)JMILE(J)=0
      ISN 0071            MILEJK(J)=0
      ISN 0072            DO 2305 ID=1,4
(002  ISN 0073            DO 2305 L=1,NSR
(001  ISN 0074            MILEJK(J)=MILEJK(J)+MILE(K,J,ID,L)
      ISN 0075      2305  CONTINUE
 001)                     C
 002)                     C
      ISN 0076            JMILE(J)=JMILE(J)+MILEJK(J)
      ISN 0077            KMILE=KMILE+MILEJK(J)
      ISN 0078      2202  CONTINUE
 003)                     C
      ISN 0079            WRITE(6,2006)
      ISN 0080            WRITE(6,2203)K,(MILEJK(J),J=1,NAT),KMILE
      ISN 0081      2203  FORMAT(' ',T4,I4,T22,9(I7,2X),I9)
      ISN 0082            WRITE(6,2007)
      ISN 0083      2201  CONTINUE
 006)                     C
      ISN 0084            WRITE(6,2006)
      ISN 0085            WRITE(6,2002)
      ISN 0086            MSUM=0
      ISN 0087            DO 2300 J=1,NAT
(005  ISN 0088            MSUM=MSUM+JMILE(J)
      ISN 0089      2300  CONTINUE
 005)                     C
      ISN 0090            WRITE(6,2006)
      ISN 0091            WRITE(6,2301)(JMILE(J),J=1,NAT),MSUM
 009)                     C
      ISN 0092      2301  FORMAT(' ',T11,'TOTAL',T22,9(I7,2X),I9)
      ISN 0093            WRITE(6,2007)
      ISN 0094            WRITE(6,2006)
      ISN 0095            WRITE(6,2002)
      ISN 0096            RETURN
                          C     DEBUG SUBCHK
                          C ZE DO-ALL FORMATS FOLLOW
      ISN 0097      2006  FORMAT('1',' ','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')
      ISN 0098      2007  FORMAT('+',' ','|',T9,'|',T21,'|',9(8X,'|'),10X,'|')
      ISN 0099      2008  FORMAT('1',' ','|',T9,'|',T21,'|',T102,'|',T113,'|')
      ISN 0100      2009  FORMAT('+',' ','|',T9,'|',T21,'|',T102,'|',T113,'|')
                          C     DEBUG SUBCHK
      ISN 0101            END
```

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

STATISTICS SOURCE STATEMENTS = 100, PROGRAM SIZE = 2874, SUBPROGRAM NAME =PRINT3

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ******

106K BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																		
I	0012	0014	0015	0032	0040	0043	0058	0079	0082	0096									
L	0055	0056	0058	0058	0060	0062	0062												
M	0025	0026	0030	0032	0040	0043	0046	0049	0056	0058	0058	0060	0062	0062					
II	0028	0028	0028	0030	0030	0030	0072	0072	0072	0072	0072	0072							
IV	0015	0017	0056	0058	0094	0096													
II	0014	0016	0032	0046	0049	0062	0085	0088	0100										
JV	0016	0017	0060	0062	0096	0100													
ICS	0002	0021																	
NAT	0003																		
NMT	0003																		
NSR	0003																		
NVT	0003																		
POP	0003																		
HEAD	0006	0006	0056	0058	0060	0062													
IBEG	0004																		
ILEV	0043	0043	0049	0049	0049	0056	0056	0058	0058	0058	0060	0060	0062	0062	0062	0082	0082	0082	
	0088	0088	0088	0094	0094	0096	0096	0096	0098	0098	0100	0100	0100						
INCR	0003																		
MILE	0003																		
MYRB	0003	0009	0041	0043	0047	0049	0080	0082	0086	0088									
MYRN	0003																		
NIOD	0003																		
NLEV	0003	0040	0046	0079	0085														
NYRN	0003																		
VTOT	0003																		
ZERO	0007	0056	0060	0094	0098														
ALREG	0003	0058	0062	0096	0100														
GVIOT	0003																		
ICONT	0004																		
IDUMP	0004																		
IPLOT	0004																		
ITABS	0004	0008	0013	0013	0021	0021													
JMASK	0004																		
KMASK	0004																		
MYREG	0003	0043	0049	0062	0088														
NTABS	0004	0011	0021																
RNAME	0004	0021																	
HEADER	0005	0005	0028	0030	0072	0072													
IPRINT	0004																		
ITABLE	0004	0010	0010	0021															
IVMASK	0004	0015	0016																
METMSK	0004																		
MLEVEL	0046	0047	0049	0049	0060	0062	0085	0086	0088	0088	0098	0100							
MODMSK	0004																		
MYRMET	0003																		
NLEVEL	0040	0041	0043	0043	0056	0058	0079	0080	0082	0082	0094	0096							
PUPDEN	0003																		
PUPLTN	0003																		
PRINT4	0002																		

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL INTERNAL STATEMENT NUMBERS
STOPGF 0003
TOTPOP 0003

*****F O R T R A N C R O S S *R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES							
1543	0026								
8025	0107	0012	0017						
8027	0034	0032							
8029	0070	0025							
8030	0029	0028							
8031	0031	0030							
8032	0045	0041.	0043						
8033	0051	0047	0049						
8034	0067	0055							
8035	0064	0056	0058						
8036	0065	0060	0062						
8037	0073	0072							
8038	0084	0080	0082						
8039	0090	0086	0088						
8040	0102	0094	0096						
8041	0103	0098	0100						
8042	0108	0038	0039	0052	0054	0068	0077	0078	0091	0093	0105
8043	0109	0066	0104						
8044	0110	0027	0036	0071	0075				
8045	0111	0035	0074						
8046	0112	0024	0037	0053	0069	0076	0092	0106	
8047	0020	0019							
8126	0023	0021.							

C-172

/ STRUCTURED SOURCE LISTING /

```
(004  ISN 0002            SUBROUTINE PRINT4(ICS)
                          C BELONGS TO SINGLE EVENT MODEL
                          CX PRINT4  TABULATES THE REGULATION SCENARIO
                          C
      ISN 0003            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                    B2    2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                    B2    3MILE(6,9,4,5),MYREG(6,4,14),ALEV(14,4),MYRNET(9),
                    B2    4NIDD(9),MYRN,INCR,MYRB,MYRN,NVT,NAT,NMT,NSR
      ISN 0004            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                    B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                    B4    3IPLOT(7),ITABLE,ITABS,NTABS
                          C
      ISN 0005            REAL*8 HEADER(2,4)/'  ACCELE','RATION  ','  DECELE','RATION  ',
                         *'        ',' CRUISE ','        ','   IDLE '/
      ISN 0006            REAL*8 HEAD(5,4)/'0-20 MPH','  0-30  ','  0-40  ','  0-50  ',
                         *'  0-60  ','20-0 MPH','  30-0  ','  40-0  ','  50-0  ','  60-0  ',
                         *' <25 MPH',' 25-34  ',' 35-44  ',' 45-54  ','  >55   ',5A' '/
      ISN 0007            DATA ZERO/0.0/
                          C ALSO BEGINNT DAS RICHTIGE STOFF
      ISN 0008            ITABS = 0
      ISN 0009            MYRB = 1974
      ISN 0010            ITABLE = ITABLE + 1
      ISN 0011            NTABS  = 7
```

```
                      C
      ISN 0012        DO 8025 I = 1,13,2
                      C
(003  ISN 0013        ITABS = ITABS+1
      ISN 0014        II = I+1
      ISN 0015        IV = IVMASK(I)
      ISN 0016        JV = IVMASK(II)
                      C
      ISN 0017        IF(IV.EQ.0.AND.JV.EQ.0) GO TO 8025
                      C
      ISN 0019           WRITE(6,8047)
      ISN 0020  8047     FORMAT('1'/'0')
      ISN 0021           IF(ICS.EQ.1) WRITE(6,8126)  ITABLE,ITABS,ITABS,NTABS,RNAME
      ISN 0023  8126     FORMAT('0',T5,'TABLE ',I2,'.',I2,'  EMISSION LEVELS, DBA.',
                     *   ' ( TABLE ',I2,' OF ',I2,' )',T110,5A4/'0')
      ISN 0024           WRITE(6,8046)
      ISN 0025           DO 8029 M=1,3
(002  ISN 0026  1593     CONTINUE
      ISN 0027           WRITE(6,8044)
      ISN 0028           WRITE(6,8030)(HEADER(II,M),II=1,2)
      ISN 0029  8030        FORMAT(' ',T20,2A8,'  MODE')
      ISN 0030              WRITE(6,8031)(HEADER(II,M),II=1,2)
      ISN 0031  8031        FORMAT('+',190,2A8,'  MODE')
      ISN 0032              IF(M.EQ.1) WRITE(6,8027) I,II
      ISN 0034  8027        FORMAT('+',T5,'TYPE ',I2,T77,'TYPE ',I2,T118,'****PRINT4')
      ISN 0035              WRITE(6,8045)
      ISN 0036              WRITE(6,8044)
      ISN 0037              WRITE(6,8046)
      ISN 0038              WRITE(6,8042)
      ISN 0039              WRITE(6,8042)
      ISN 0040              NLEVEL=NLEV(I,M)
      ISN 0041              IF(NLEVEL.EQ.1) WRITE(6,8032)MYRS
      ISN 0043              IF(NLEVEL.NE.1) WRITE(6,8032)MYRS,(MYREG(ILEV,M,I),ILEV=2,NLEVEL)
C--------
      ISN 0045  8032     FORMAT('+',' YEARS>',T10,5(6X,I4))
      ISN 0046           NLEVEL=NLEV(II,M)
      ISN 0047           IF(NLEVEL.EQ.1) WRITE(6,8033)MYRS
      ISN 0049           IF(NLEVEL.NE.1) WRITE(6,8033)MYRS,(MYREG(ILEV,M,II),ILEV=2,NLEVEL)
C--------
      ISN 0051  8033     FORMAT('+',T71,'  YEARS>',T80,5(6X,I4))
      ISN 0052           WRITE(6,8042)
      ISN 0053           WRITE(6,8046)
      ISN 0054           WRITE(6,8042)
      ISN 0055           DO 8034 L=1,5
                         C
(001  ISN 0056           IF(IV.EQ.0) WRITE(6,8035) HEAD(L,M),(ZERO,ILEV=1,NLEVEL)
      ISN 0058           IF(IV.EQ.1)
                     *   WRITE(6,8035) HEAD(L,M),(ALREG(ILEV,L,M,I),ILEV=1,NLEVEL)
                         C
      ISN 0060           IF(JV.EQ.0) WRITE(6,8036) HEAD(L,M),(ZERO,ILEV=1,NLEVEL)
      ISN 0062           IF(JV.EQ.1)
                     *   WRITE(6,8036) HEAD(L,M),(ALREG(ILEV,L,M,II),ILEV=1,NLEVEL)
                         C
      ISN 0064  8035     FORMAT(' ',T4,A8,T12,5(4X,F6.2))
      ISN 0065  8036     FORMAT('+',T4,A8,T82,5(4X,F6.2))
                         C
      ISN 0066           WRITE(6,8043)
      ISN 0067  8034     CONTINUE
```

```
001)                        C
     ISN 0068               WRITE(6,8042)
     ISN 0069               WRITE(6,8046)
     ISN 0070      8029     CONTINUE
                            C IDLE MODE IS TAKEN CARE OF AS A SPECIAL CASE
002)                        C
     ISN 0071               WRITE(6,8044)
     ISN 0072               WRITE(6,8037)(HEADER(II,4),II=1,2),(HEADER(II,4),II=1,2)
     ISN 0073      8037        FORMAT(' ',T20,2A8,'  MODE',T90,2A8,'  MODE')
     ISN 0074                  WRITE(6,8045)
     ISN 0075                  WRITE(6,8044)
     ISN 0076                  WRITE(6,8046)
     ISN 0077                  WRITE(6,8042)
     ISN 0078                  WRITE(6,8042)
     ISN 0079                  NLEVEL=NLEV(I,4)
     ISN 0080                  IF(NLEVEL.EQ.1) WRITE(6,8038)MYRB
     ISN 0082                  IF(NLEVEL.NE.1) WRITE(6,8038)MYRB,(MYREG(ILEV,3,I),ILEV=2,NLEVEL)
C--------
     ISN 0084      8038     FORMAT('+',' YEARS>',T10,5(6X,I4))
     ISN 0085               NLEVEL=NLEV(I1,4)
     ISN 0086               IF(NLEVEL.EQ.1) WRITE(6,8039)MYRB
     ISN 0088               IF(NLEVEL.NE.1) WRITE(6,8039)MYRB,(MYREG(ILEV,3,I1),ILEV=2,NLEVEL)
C--------
     ISN 0090      8039     FORMAT('+',T71,' YEARS>',T80,5(6X,I4))
     ISN 0091               WRITE(6,8042)
     ISN 0092               WRITE(6,8046)
     ISN 0093               WRITE(6,8042)
                            C
     ISN 0094               IF(IV.EQ.0) WRITE(6,8040) (ZERO,ILEV=1,NLEVEL)
     ISN 0096               IF(IV.EQ.1)
                       *    WRITE(6,8040)(ALREG(ILEV,1,4,I),ILEV=1,NLEVEL)
                            C
     ISN 0098               IF(JV.EQ.0) WRITE(6,8041) (ZERO,ILEV=1,NLEVEL)
     ISN 0100               IF(JV.EQ.1)
                       *    WRITE(6,8041)(ALREG(ILEV,1,4,I1),ILEV=1,NLEVEL)
                            C
     ISN 0102      8040     FORMAT(' ',T12,5(4X,F6.2))
     ISN 0103      8041     FORMAT('+',T82,5(4X,F6.2))
                            C
     ISN 0104               WRITE(6,8043)
     ISN 0105               WRITE(6,8042)
     ISN 0106               WRITE(6,8046)
     ISN 0107      8025  CONTINUE
003)                       C
     ISN 0108      8042  FORMAT(' ','|',10X,5('|',9(' ')),'|',8X,'|',10X,5('|',9(' ')),'|')
     ISN 0109      8043  FORMAT('+','|',10X,5('|',9(' ')),'|',8X,'|',10X,5('|',9(' ')),'|')
     ISN 0110      8044  FORMAT(' ','|',T63,'|',T72,'|',T133,'|')
     ISN 0111      8045  FORMAT('+','|',T63,'|',T72,'|',T133,'|')
     ISN 0112      8046  FORMAT('+',62('_'),8X,62('_'))
     ISN 0113            RETURN
                         C      DEBUG SUBCHK
004)                     C
     ISN 0114            END
```

C-174

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FOR GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

LEVEL 2 (SEPT 76) PRINT4 08/360 FORTRAN H EXTENDED DATE 80.273/19.42.09 PAGE

STATISTICS SOURCE STATEMENTS = 113, PROGRAM SIZE = 3574, SUBPROGRAM NAME =PRINT4

STATISTICS NO DIAGNOSTICS GENERATED

****** END OF COMPILATION ******

94K BYTES OF CORE NOT USED

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS									
I	0014	0014	0014							
NAT	0003									
NMT	0003									
NSR	0003									
NVT	0003									
PUP	0003									
IBEG	0004									
INCR	0003									
IYRN	0009	0010	0011	0011	0011	0014	0014	0016	0016	0016
MILE	0003									
MYRB	0003									
MYRN	0003									
NIOD	0003									
NLEV	0003									
NYRN	0003	0008	0009	0016						
VTOT	0003	0014								
YEAR	0005	0010	0014							
ALREG	0003									
GVTOT	0003	0014								
HEADV	0011									
ICONT	0004									
IDUMP	0004									
IPLOT	0004									
ITABS	0004	0007								
JMASK	0004									
KMASK	0004									
MYREG	0003									
NTABS	0004	0008								
RNAME	0004									
IPRINT	0004									
ITABLE	0004	0006	0006							
IVMASK	0004									
METMSK	0004									
MODMSK	0004									
NYRNET	0003	0010								
POPDEN	0003									
POPLTN	0003									
PRINTS	0002									
STOPGF	0003									
TOTPOP	0003									

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
8000	0018	0009
8009	0015	0014
8012	0020	0013
8014	0021	0016

```
                                  / STRUCTURED SOURCE LISTING /
(002  ISN 0002          SUBROUTINE PRINTS
                        C BELONGS TO SINGLE EVENT MODEL
                        CX PRINTS  TABULATES THE VEHICLE POPULATION FOR EACH NET YEAR
                        C
      ISN 0003          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                  B2   2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                  B2   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                  B2   4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
      ISN 0004          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                  B4   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                  B4   3IPLOT(7),ITABLE,ITABS,NTABS
                        C
      ISN 0005          INTEGER YEAR
      ISN 0006          ITABLE = ITABLE + 1
      ISN 0007          ITABS = 0
      ISN 0008          NTABS = (NYRN - 1) / 14 + 1
                        C
      ISN 0009          DO 8000 IYRN = 1,NYRN
                        C
(001  ISN 0010          YEAR   = MYRNET(IYRN)
      ISN 0011          IF (IYRN.EQ.1.OR.IYRN.EQ.15.OR.IYRN.EQ.29) CALL HEADV
      ISN 0013          WRITE(6,8012)
      ISN 0014          WRITE(6,8009)YEAR,(VTOT(I,IYRN),I=1,14),GVTOT(IYRN)
C-------
      ISN 0015    8009     FORMAT (' |',I6,T13,'|',9(-6PF6.2,' |'),3(-4PF6.2,' |'),2(-6PF6.2,
                     *   ' |'),-6PF7.2,'|')
      ISN 0016             IF(IYRN.EQ.14.OR.IYRN.EQ.28.OR.IYRN.EQ.NYRN) WRITE(6,8014)
                           C
C-------
      ISN 0018    8000  CONTINUE
 001)                   C
      ISN 0019          RETURN
                        C
                        C   FORMAT STATEMENTS
                        C
 002)                   C
      ISN 0020    8012  FORMAT(' |',T13,'|',15('        |'))
      ISN 0021    8014  FORMAT(' |',T13,'|',15('        |')/'+',132('_'))
      ISN 0022          END

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      21, PROGRAM SIZE =      652, SUBPROGRAM NAME =PRINTS

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******
                                                                  122K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																		
A	0002	0105	0106	0106	0106	0108	0109	0109	0109	0112	0113	0113	0113	0115	0116	0116	0116		
I	0002																		
J	0022	0023	0023	0058	0061	0061	0061	0062	0062	0062	0062	0062	0063	0063	0063	0063	0063	0064	0064
	0070	0071	0073	0074	0074	0076	0078	0078	0078	0078	0080	0080	0080	0082	0082	0082	0082	0083	0083
	0083	0084	0084	0084	0087	0087	0087	0088	0088	0088	0098	0099	0103	0105	0105	0106	0106	0106	0108
	0108	0109	0109	0109	0112	0112	0113	0113	0113	0116	0115	0116	0116	0116	0132	0133	0136	0138	0138
	0138	0138	0138	0140	0140	0140	0140	0140											
K	0059	0061	0061	0061	0062	0062	0062	0062	0062	0063	0063	0063	0063	0063	0064	0064	0075	0076	0078
	0078	0078	0078	0080	0085	0087	0087	0088	0088	0101	0105	0105	0106	0106	0106	0108	0108	0109	0109
	0109	0112	0112	0113	0113	0113	0115	0115	0116	0116	0116	0135	0138	0138	0138	0138	0140	0140	0155
	0156																		
L	0066	0067	0067	0068	0077	0078	0136	0138	0138	0140	0140								
V	0004	0067																	
ID	0072	0073	0074	0074	0076	0078	0078	0078	0080	0080	0080	0082	0082	0082	0082	0083	0083	0083	0084
	0087	0087	0088	0088	0100	0103	0105	0105	0106	0106	0106	0108	0108	0109	0109	0109	0112	0112	0113
	0113	0113	0115	0115	0116	0116	0116	0134	0138	0138	0138	0138	0140	0140	0140	0140	0140		
IL	0060	0061	0061	0062	0062	0062	0062	0063	0063	0063	0063	0064	0064	0086	0067	0087	0088	0088	0102
	0105	0105	0106	0106	0106	0108	0108	0109	0109	0109	0112	0112	0113	0113	0113	0115	0115	0116	0116
	0116	0137	0138	0138															
IT	0002	0103	0105	0106	0106	0106	0106	0106	0108	0109	0109	0109	0109	0109	0112	0113	0113	0113	0113
	0113	0115	0116	0116	0116	0116	0116	0124	0127	0127	0127								
KA	0139	0140	0140																
X2	0002	0061	0062	0062	0063	0063	0087	0088	0138										
ADT	0002																		
ALO	0002																		
COC	0006	0037																	
CZD	0002	0061																	
DBK	0002	0106	0106	0109	0109	0113	0113	0116	0116										
FIX	0034																		
KOM	0006	0037																	
MYR	0002																		
NAT	0003	0058	0070	0098	0132														
NHT	0003	0059	0075	0085	0101	0135	0139												
NID	0071	0072	0099	0100	0133	0134													
NSR	0003	0066	0077	0136															
VVT	0003																		
PGF	0002																		
POP	0003	0084	0084																
VAF	0002	0013																	
VGF	0002	0013																	
VML	0002																		
ADBL	0006																		
AREA	0002	0074	0082	0083															
DREF	0009	0064	0067	0066															
EDGE	0004	0074	0088	0092															
FIMP	0006	0012	0037																
FNTN	0006																		
GAMM	0004	0062	0063																
IBEG	0006	0020																	

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS							
IACH	0003							
IPER	0004							
IRDB	0125	0127	0127	0127				
IVAF	0002							
IVBD	0002							
IVGF	0002	0013						
IYRN	0028	0028	0028	0046	0047	0047		
JCOC	0006	0037						
JFLO	0004							
JPGF	0002							
KFLO	0004							
KIND	0104	0111	0126	0127	0127	0127		
KPER	0004							
LANE	0002							
LIFE	0002	0013						
MILE	0003	0012	0078	0138	0140			
MYRB	0003	0040	0043					
MYRE	0002							
MYRN	0003							
NADB	0006							
NIOD	0003	0071	0099	0133				
NLEV	0003	0011						
NPMK	0002	0076	0078	0078	0080	0140		
NRGB	0006							
NYRN	0003	0028	0028	0044	0046	0051		
PACT	0006	0037						
PGFO	0002							
RDBL	0006							
REMO	0002	0013						
REPZ	0004	0087	0092	0105	0106	0112	0113	
SQRT	0057	0074						
VINC	0002							
VPOP	0002							
VTOT	0003							
XINC	0002							
YINC	0002							
ZERO	0016							
ALREG	0003	0011						
ARCOS	0057							
AVDBL	0006							
AVPOP	0002							
CONV2	0009	0074	0082	0138	0140			
DLLEV	0006	0067	0068	0095				
DLPSI	0006	0064	0095					
GVTOT	0003							
ICONT	0005	0014	0018	0035	0054	0146	0161	
IDUMP	0005	0018	0037	0092	0095	0121	0129	0143
IFIMP	0006	0037						
INOUT	0006	0037						
IPACT	0006	0037						
IPLOT	0005	0018	0023					
ITABS	0005							
JMASK	0005	0020						
JAYLE	0002	0103						
KMASK	0005	0018						

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS														
MYNEF	0002	0013													
MYREG	0003	0011													
PLDEN	0006	0138	0143												
RATIO	0006	0032	0127	0127	0129										
REDGE	0004	0088	0092	0108	0109	0115	0116								
RNAME	0005	0030	0037	0037	0092	0092	0092	0095	0095	0129					
SHIFT	0006														
THETA	0057	0064	0067	0068											
VBD74	0002	0026													
VBD77	0002	0026													
VBD85	0002	0026													
VBD90	0002														
WIDTH	0002	0061	0062	0063	0064										
ALOG10	0062	0062	0063	0063	0064	0067	0068	0105	0106	0108	0109	0112	0113	0115	0116
ANAMET	0007	0016													
DJKLEV	0006	0062	0063	0095											
DRATIO	0006	0127	0129												
EDGEPZ	0004														
EVPROB	0006														
FLOMIX	0004	0012													
FPAREA	0002	0082	0138												
FPROAD	0002	0078	0138												
HIMAY2	0012	0017													
IBUAGE	0002														
IPRINT	0005	0018	0149	0151	0153	0159									
ITABLE	0005														
IVMASK	0005	0018													
METMSK	0005	0020	0023												
METRIC	0006	0008													
MODMSK	0005	0020													
MYRNET	0003	0028	0040	0043	0047	0047	0051								
NEVENT	0008														
NNTABS	0005														
NPMILE	0002	0073	0080	0080	0082	0140									
PERCNT	0004	0012													
PUPDEN	0003	0083	0138	0140											
POPLTN	0003	0083	0084												
PRINT1	0149														
PRINT2	0151														
PRINT3	0153														
PRINT4	0159														
RDBCUT	0006	0108	0109	0109	0115	0116	0116	0121							
RDBEDG	0006	0105	0106	0106	0112	0113	0113	0121							
REGSCN	0011														
SEPROB	0006	0140	0143												
SERESC	0155														
STOPGF	0003														
TIMSTR	0164														
TOTPOP	0003														
VEHGF1	0013	0158													
WDTHPZ	0004	0082	0087	0092											

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
18	0046	
22	0054	0044
23	0070	
50	0146	0035
1000	0019	0018
1001	0027	0026
1002	0029	0028
1003	0031	0030
1004	0033	0032
1005	0021	0020
1006	0039	0037
1010	0025	0022
1400	0010	0014
1800	0050	0046
1810	0049	0047
1820	0042	0040
1830	0053	0051
2001	0056	0054
2110	0065	0058 0059 0060
2120	0069	0066
2300	0091	0070
2301	0090	0072
2303	0081	0075
2304	0079	0077
2311	0089	0085 0086
2398	0094	0092
2399	0097	0095
2401	0120	0098 0100
2402	0119	0101
2403	0118	0102
2407	0123	0121
2501	0128	0124 0125 0126
2503	0131	0129
2601	0142	0132 0134 0135 0136 0137
2602	0141	0139
2605	0145	0143
3000	0155	
3001	0148	0146
3002	0159	0156
4001	0163	0161
7000	0165	
7001	0166	0165

/ STRUCTURED SOURCE LISTING /

```
C MAIN
CDICT:      CF  FILE DESCRIPTION
CDICT       CX  SUBPROGRAM DESCRIPTION
CDICT       CT  SUBPROGRAM TITLES
CDICT       CC  COMMON BLOCK DESCRIPTION
CDICT       CD  EXPLANATION OF COMMON & CONTINUATION DESCRIPTOR FIELDS
CDICT       HX  CONTINUATION OF COMMON BLOCK BIG00X
CDICT       DX  CONTINUATION OF DUMP BLOCKS
C
C
```

```
                C  THIS IS A PROGRAM WHICH CALCULATES THE NUMBER OF PEOPLE
                C  IMPACTED  BY SINGLE-EVENT NOISE ORIGINATING FROM HIGHWAY TRAFFIC.
                C
                CF  DESCRIPTION: THIS IS FILE SEMAIN9R
                CF SEMAIN9R LAST UPDATE: 21 JUL 1980
                CC BIG001  LAST UPDATE:      07/26/79 16:25:09
                CC BIG002  LAST UPDATE:      80-07-15
                CC BIG003  LAST UPDATE:      07/26/79 16:25:33
                CC BIG004  LAST UPDATE:      11/16/78 11:53:45
                CC BIG005  LAST UPDATE:      07/30/79 17:17:23
                C$
                C
                C MAIN PROGRAM
                C
                C SECTION 10    DATA MANAGEMENT
                C
                C SECTION 11   COMMON BLOCKS, DIMENSIONS
                C
(026  ISN 0002          COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                B1    2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                B1    3VML(14,4,5),A(2,3),DBK(3),CZO(9,6),PGF(5),
                B1    4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                B1    6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
                B1    7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),
                B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
                C
                C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                C
C-182     ISN 0003          COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                B2    2POPDEN(4,9),POPLTN(4,9),BTOPGF(9,9),TOTPOP(9),
                B2    3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                B2    4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                C
                C END PRINT  COMMON BLOCK
                C
      ISN 0004          COMMON /BIG003/ GAMM(6,9),V(5),EDGE(4,9),EDGEPZ(4,9,6),
                B3    2WDTHPZ(4,9),FLOMIX(14,4,5),PERCNT(4,2,4),
                B3    3HEPZ(4,9,6,4),HEDGE(4,9,6,4),
                B3    4JFLO(9),KFLO(6),KPER(6),IPER(14)
      ISN 0005          COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                B4    2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
                B4    3IPLOT(7),ITABLE,ITABS,NNTABS
                C
      ISN 0006          COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),KDBL(18),
                B5    2PLDEN(4,9,6,5,4),SEPROB(4,9,6,6,5),
                B5    3RDBEDG(4,9,6,4,2),RDBCUT(4,9,6,4,2),DLPBI(9,6,4),
                B5    4METRIC(20,7,2),DJKLEV(9,6,4,2),DLLEV(5,2),
                B5    5PACT(5,2),PRIN(2),COC(7),EVPROB(14,9,6),
                B5    6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),
                B5    7IFIMP(7),JCOC(7),INOUT(7),KOM(7),NADB,NRDB
                C SECTION 12     INITIALIZE AND READ IN SOME DATA
                C
                C
      ISN 0007          COMMON ANNMET( 9,3,7)
      ISN 0008          REAL NEVENT,METRIC
      ISN 0009          DATA CONV2/ 2.64E3 /,DREF/50.0/
                C
```

```
                      C SECTION 14     DEFINE NAMELISTS, READ IN MILEAGE & CONTROL MASKS
                      C
      ISN 0010  1400  FORMAT('     SECTION 12 ')
                      C
      ISN 0011        NAMELIST/REGSCN/ ALREG,NLEV,MYREG
      ISN 0012        NAMELIST/HIWAY2/ MILE,PERCNT,FLOMIX,FIMP
      ISN 0013        NAMELIST/VEHGF4/ VGF,IVGF,REMO,MYREF,VAF,LIFE
                      C
      ISN 0014        IF (ICONT(9).EQ.1) WRITE(6,1400)
      ISN 0016        CALL ZERO(ANNMET,189)
      ISN 0017        READ(3,HIWAY2)
      ISN 0018        READ(4,1000) IPLOT,IPRINT,IDUMP,KMASK,IVMASK,ICONT
      ISN 0019  1000  FORMAT(10X,7I1/10X,12I1/10X,12I1/10X,6I1/10X,14I1/10X,12I1)
      ISN 0020        READ(4,1005) JMASK,METMSK,MODMSK,IBEG
      ISN 0021  1005  FORMAT(10X,9I1/10X,7I1/10X,3I1/10X,7I1)
      ISN 0022        DO 1010 J=1,7
(025  ISN 0023        IF (METMSK(J).EQ.0) IPLOT(J)=0
      ISN 0025  1010  CONTINUE
 025)                 C
      ISN 0026        READ(4,1001) VBD74,VBD77,VBD85
      ISN 0027  1001  FORMAT(3(10X,7(F6.3,1X)/))
      ISN 0028        READ(4,1002) NYRN,(MYRNET(IYRN),IYRN=1,NYRN)
      ISN 0029  1002     FORMAT(10X,I2/10X,9(I4,1X))
      ISN 0030           READ(4,1003) RNAME
      ISN 0031  1003     FORMAT(10X,5A4)
      ISN 0032           READ(4,1004) RATIO
      ISN 0033  1004     FORMAT(18(6X,6E11.4/))
                         C
                         C SECTION 15     COMPUTE INTER-EXTRAPOLATORY ARRAYS USED BY FUNCTION VBD
                         C
      ISN 0034           CALL FIX
                         C
                         C SECTION 16     SKIP TO TIMESTREAM IF ONLY VPOP IS WANTED(ICONT(1)=1)
                         C
      ISN 0035           IF(ICONT(1).EQ.1) GO TO 50
      ISN 0037           IF(IDUMP(1).EQ.1) WRITE(6,1006) RNAME,FIMP,IFIMP,RNAME,
                       *  PACT,IPACT,COC,JCOC,INOUT,KOM
      ISN 0039  1006     FORMAT('1#1 DUMP: FIMP(ILI4,IFIMP)',T110,5A4/'0'/
                D1   2   40(2X,10(F10.5,1X)/)/' #1 DUMP: IFIMP(IM)'/'0 ',7I4/
                D1   3   '1#1 DUMP: PACT(IPACT)',T110,5A4/'0',10F10.5/
                D1   4   '0#1 DUMP: IPACT.'/'0',7I4/'0#1 DUMP: COC'/'0',7F10.2/
                D1   5   '0#1 DUMP: JCOC.'/'0',7I4/'0#1 DUMP: INOUT'/'0',7I4/
                D1   6   '0#1 DUMP: KOM.'/'0',7I4)
                         C
                         C SECTION 18     CHECK TIMESTREAM NET POINTS FOR ORDERING AND LIMITS
                         C
      ISN 0040           IF(MYRNET(1).NE.MYRB)WRITE(6,1820)
      ISN 0042  1820     FORMAT('0   FIRST YEAR IS NOT BASELINE...HAS BEEN RESET')
      ISN 0043           MYRNET(1)=MYRB
      ISN 0044           IF (NYRN.EQ.1)      GO TO 22
                         C
      ISN 0046    18        DO 1800 IYRN   = 2,NYRN
                            C
(024  ISN 0047              IF(MYRNET(IYRN).LE.MYRNET(IYRN-1))WRITE(6,1810)
      ISN 0049  1810        FORMAT(' ','YEARS NOT IN ASCENDING ORDER       ')
                            C
      ISN 0050  1800        CONTINUE
                            C
```

```
 024)                          C
      ISN 0051                 IF(MYRNET(NYRN).GT.2013)WRITE(6,1830)
      ISN 0053      1830       FORMAT('0'/'0'/'   LAST NET YEAR IS LATER THAN 2013...')
                               C
                               C SECTION 20     COMPUTE VARIOUS ARRAYS BEFORE TIMESTREAM
                               C
C-------
      ISN 0054      22       IF (ICONT(9).EQ.1) WRITE(6,2001)
      ISN 0056      2001     FORMAT('    SECTION 20')
                             C
                             C SECTION 21     COMPUTE THE LEVEL SHIFT( DELTA-INDEX) ARRAYS
                             C
                             C SECTION 21.1   COMPUTE X2, DISTANCE TO CLEAR ZONE, & DJKLEV
                             C
      ISN 0057               THETA = ARCOS (     1.0 / SQRT(10.0)     )
      ISN 0058               DO 2110 J=1,NAT
                             C
(023  ISN 0059               DO 2110 K=1,NHT
(017  ISN 0060               DO 2110 IL=1,4
                             C
(012  ISN 0061               X2(J,K,IL)          = CZD(J,K) + (IL - 0.5) * WIDTH(J,K)
      ISN 0062               DJKLEV(J,K,IL,1)  = -10. * ALOG10(X2(J,K,IL)) +  GAMM(K,J) *
                         *   10. * ALOG10((IL-0.5)*WIDTH(J,K)/X2(J,K,IL))
      ISN 0063               DJKLEV(J,K,IL,2)  = -20. * ALOG10(X2(J,K,IL)) +  GAMM(K,J) *
                         *   10. * ALOG10((IL-0.5)*WIDTH(J,K)/X2(J,K,IL))
      ISN 0064               DLPSI(J,K,IL)      = 10. * ALOG10( THETA / 3. *
                         *   (DREF/IL/WIDTH(J,K))**2)
                             C
      ISN 0065      2110     CONTINUE
                             C
                             C SECTION 21.2  COMPUTE DLLEV ARRAY
                             C
                             C
 012)                        C
 017)                        C
 023)                        C
      ISN 0066               DO 2120 L=1,NSR
                             C
(022  ISN 0067               DLLEV(L,1) = 10.* ALOG10(15. * THETA * DREF**2. / 11./ V(L))
      ISN 0068               DLLEV(L,2) = 10.* ALOG10(        THETA * DREF**2. / 3.)
                             C
      ISN 0069      2120     CONTINUE
                             C
                             C SECTION 23    THE FOLLOWING BLOCK DELINEATES THE POPULATED ZONE
                             C
 022)                        C
      ISN 0070        23     DO 2300 J       = 1,NAT
                             C
(021  ISN 0071               NID     = NIDD(J)
                             C
      ISN 0072               DO 2301 ID      = 1,NID
                             C
(016  ISN 0073               NPMILE(ID,J) = 0
      ISN 0074               EDGE(ID,J)      = CONV2 * SQRT(AREA(ID,J))
                             C
      ISN 0075               DO 2303 K      = 1,NHT
                             C
(011  ISN 0076               NPMK(ID,J,K) = 0
```

```
                                C
      ISN 0077                  DO 2304 L      = 1,NSR
(006  ISN 0078                  NPMK(ID,J,K) = NPMK(ID,J,K) + MILE(K,J,ID,L)*FPROAD(J,K)
      ISN 0079        2304      CONTINUE
                                C
 006)                           C
      ISN 0080                  NPMILE(ID,J) = NPMILE(ID,J) + NPMK(ID,J,K)
      ISN 0081        2303      CONTINUE
                                C
                                C SECTION 23.1   COMPUTE WDTHPZ,POPLTN,POP,REPZ AND REDGE ARRAYS
                                C
 011)                           C
      ISN 0082                  WDTHPZ(ID,J) = AREA(ID,J)*FPAREA(J,ID)/NPMILE(ID,J)*CONV2
      ISN 0083                  POPLTN(ID,J) = POPDEN(ID,J)*AREA(ID,J)
      ISN 0084                  POP(J)       = POP(J)+POPLTN(ID,J)
                                C
      ISN 0085                  DO 2311 K=1,NHT
(010  ISN 0086                  DO 2311 IL=1,4
                                C
(005  ISN 0087                  REPZ(ID,J,K,IL) = WDTHPZ(ID,J) / X2(J,K,IL) + 1.
      ISN 0088                  REDGE(ID,J,K,IL) = EDGE(ID,J) / X2(J,K,IL)
                                C
      ISN 0089        2311      CONTINUE
                                C
 005)                           C
 010)                           C
      ISN 0090        2301      CONTINUE
 016)                           C
      ISN 0091        2300      CONTINUE
                                C
                                C  DUMP COMPUTED ARRAYS
                                C
 021)                           C
      ISN 0092                  IF(IDUMP(2).EQ.1)  WRITE(6,2398) RNAME,WDTHPZ,EDGE,
                            *   RNAME,REPZ,RNAME,REDGE
      ISN 0094        2398      FORMAT('1#2 DUMP: WDTHPZ',T110,5A4/'0'/3(1X,3(4F9.0,4X)/)/
                      D2    2   '0#2 DUMP: EDGE'/'0'/3(1X,3(4F9.0,4X)/)/
                      D2    3   '1#2 DUMP: REPZ',T110,5A4/36(1X,3(4F9.2,4X)/)/
                      D2    4   '1#2 DUMP: REPZ-2'/'0'/36(1X,3(4F9.2,4X)/)/
                      D2    5   '1#2 DUMP: REDGE',T110,5A4/'0'/36(1X,3(4F9.2,4X)/)/
                      D2    6   '1#2 DUMP: REDGE-2'/'0'/'0'/36(1X,3(4F9.2,4X)/)/)
      ISN 0095                  IF(IDUMP(3).EQ.1) WRITE(6,2399) RNAME,DJKLEV,RNAME,DLLEV,DLPSI
      ISN 0097        2399      FORMAT('1#3 DUMP: DJKLEV(J,K,IL,KIND)',T110,5A4//48(5X,9F10.2/)/
                      D3    2   '1#3 DUMP: DLLEV(L,KIND)',T110,5A4///2(5X,5F10.2/)//
                      D3    3   '0#3 DUMP: DLPSI(J,K,IL)'///24(5X,9F10.2/)    )
                                C
                                C SECTION 24     COMPUTE CUT-OFF CRITERION ARRAYS
                                C
      ISN 0098                  DO 2401 J=1,NAT
                                C
(020  ISN 0099                  NID=NIDD(J)
                                C
      ISN 0100                  DO 2401 ID=1,NID
(015  ISN 0101                  DO 2402 K=1,NHT
(009  ISN 0102                  DO 2403  IL=1,4
                                C
(004  ISN 0103                  IT=JWYLE(J,ID)
                                C
```

```
                      C SECTION 24.1    COMPUTE SEL CUTOFF CRITERIA(KIND=1)
                      C
      ISN 0104        KIND = 1
      ISN 0105        RDBEDG(ID,J,K,IL,1) =
                     *  (10.-A(1,IT))*ALOG10(REPZ(ID,J,K,IL))
      ISN 0106        IF(RDBEDG(ID,J,K,IL,1).LT.-DBK(IT)) RDBEDG(ID,J,K,IL,1) =
                     *  (10.-A(2,IT))*ALOG10(REPZ(ID,J,K,IL)) -
                     *  DBK(IT)*(1.-A(2,IT)/A(1,IT))
                      C
                      C
      ISN 0108        RDBCUT(ID,J,K,IL,1) =
                     *  (10.-A(1,IT))*ALOG10(REDGE(ID,J,K,IL))
      ISN 0109        IF(RDBCUT(ID,J,K,IL,1).LT.-DBK(IT)) RDBCUT(ID,J,K,IL,1) =
                     *  (10.-A(2,IT))*ALOG10(REDGE(ID,J,K,IL)) -
                     *  DBK(IT)*(1.-A(2,IT)/A(1,IT))
                      C
                      C
                      C
                      C SECTION 24.2    COMPUTE LEQ CUTOFF CRITERIA(KIND=2)
                      C
      ISN 0111        KIND = 2
      ISN 0112        RDBEDG(ID,J,K,IL,2) =
                     *  -A(1,IT)*ALOG10(REPZ(ID,J,K,IL))
      ISN 0113        IF(RDBEDG(ID,J,K,IL,2).LT.-DBK(IT)) RDBEDG(ID,J,K,IL,2) =
                     *  -A(2,IT)*ALOG10(REPZ(ID,J,K,IL)) -
                     *  DBK(IT)*(1.-A(2,IT)/A(1,IT))
                      C
      ISN 0115        RDBCUT(ID,J,K,IL,2) =
                     *  -A(1,IT)*ALOG10(REDGE(ID,J,K,IL))
      ISN 0116        IF(RDBCUT(ID,J,K,IL,2).LT.-DBK(IT)) RDBCUT(ID,J,K,IL,2) =
                     *  -A(2,IT)*ALOG10(REDGE(ID,J,K,IL)) -
                     *  DBK(IT)*(1.-A(2,IT)/A(1,IT))
                      C
                      C
                      C
C-------
      ISN 0118  2403  CONTINUE
 004)                 C
      ISN 0119  2402  CONTINUE
 009)                 C
      ISN 0120  2401  CONTINUE
                      C
                      C DUMP CUTOFF CRITERION ARRAYS
                      C
 015)                 C
 020)                 C
      ISN 0121        IF(IDUMP(4).EQ.1)   WRITE(6,2407) RDBEDG,RDBCUT
      ISN 0123  2407  FORMAT(4('1#4 DUMP:RDBEDG(ID,J,K,IL,KIND)'/54(1X,8F14.2/)/)
                D4  2 4('1#4 DUMP:RDBCUT(ID,J,K,IL,KIND)'/54(1X,8F14.2/)/) )
                      C
                      C SECTION 25    COMPUTE AND DUMP DRATIO ARRAY
                      C
      ISN 0124        DO 2501  IT=1,3
(019  ISN 0125        DO 2501  IRDB=1,17
(014  ISN 0126        DO 2501  KIND=1,2
                      C
(008  ISN 0127        DRATIO(IRDB,IT,KIND)=RATIO(IRDB+1,IT,KIND)-RATIO(IRDB,IT,KIND)
                      C
```

```
      ISN 0128      2501      CONTINUE
                              C
 008)                         C
 014)                         C
 019)                         C
      ISN 0129                IF(IDUMP(5).EQ.1)  WRITE(6,2503) RNAME,RATIO,DRATIO
      ISN 0131      2503      FORMAT('1#5 DUMP: RATIO ',T110,5A4/12(1X,9F14.4/)/
                    D5    2   '0#5 DUMP: DRATIO'///6(1X,9F14.4/1X,8F14.4/))
                              C
                              C SECTION 26   COMPUTE THE NORMALIZED POPULATION DENSITY
                              C              AND THE SECONDARY EXPOSURE PROBABILITY; DUMP
                              C
      ISN 0132                DO 2601   J=1,NAT
                              C
(018  ISN 0133                NID=NIDD(J)
                              C
      ISN 0134                DO 2601   ID=1,NID
(013  ISN 0135                DO 2601   K=1,NHT
(007  ISN 0136                DO 2601   L=1,NSR
(003  ISN 0137                DO 2601   IL=1,4
                              C
(002  ISN 0138                PLDEN(ID,J,K,L,IL)  = POPDEN(ID,J) / CONV2 / FPAREA(J,ID)
                          *   * FPROAD(J,K) * MILE(K,J,ID,L) * X2(J,K,IL)
      ISN 0139                DO 2602 KA=1,NHT
                              C
(001  ISN 0140                SEPROB(ID,J,K,KA,L) = MILE(K,J,ID,L) * POPDEN(ID,J) /
                          *   CONV2 * NPMK(ID,J,KA) / NPMILE(ID,J)
      ISN 0141      2602      CONTINUE
                              C
 001)                         C
      ISN 0142      2601      CONTINUE
                              C
 002)                         C
 003)                         C
 007)                         C
 013)                         C
 018)                         C
      ISN 0143                IF(IDUMP(6).EQ.1) WRITE(6,2605) PLDEN,SEPROB
      ISN 0145      2605      FORMAT(8('1#6 DUMP: PLDEN.'/
                    D6    1   45(1X,4E10.3,3X,4E10.3,3X,4E10.3,3X/)/)
                    D6    2   10('1#6 DUMP: SEPROB(ID,J,K,KA,L)',
                    D6    3   54(1X,4E10.3,3X,4E10.3,3X,4E10.3,3X/)/))
                              C
                              C SECTION 30    READ A REGULATION SCENARIO, TABULATE CONSTANT DATA
                              C
      ISN 0146      50      IF (ICONT(9).EQ.1) WRITE(6,3001)
      ISN 0148      3001    FORMAT('    SECTION 30')
                            C
                            C CALL PRINT4, PRINTS CONSTANT DATA
                            C
      ISN 0149              IF(IPRINT(1).EQ.1)  CALL PRINT1
      ISN 0151              IF(IPRINT(2).EQ.1)  CALL PRINT2
      ISN 0153              IF(IPRINT(3).EQ.1)  CALL PRINT3
C-------
      ISN 0155      3000    CALL SERESC(K)
      ISN 0156              IF(K.EQ.-1) STOP 1111
      ISN 0158              READ(5,VEHGF1,END=3002)
                            C
```

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                      C SECTION 30.2    PRINT THE REGULATION SCENARIO
                      C
     ISN 0159     3002  IF(IPRINT(4).EQ.1)  CALL  PRINT4(1)
                      C
                      C SECTION 40    CALL TIMESTREAM
                      C
     ISN 0161           IF (ICONT(9).EQ.1) WRITE(6,4001)
     ISN 0163     4001  FORMAT('1   SECTION 40')
     ISN 0164           CALL TIMSTR
     ISN 0165     7000  WRITE(6,7001)
     ISN 0166     7001  FORMAT('0  ERROR: END OF DATA ON DATASET 5.')
     ISN 0167           STOP
026)                   C
     ISN 0168           END
```

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*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =     167, PROGRAM SIZE =     7916, SUBPROGRAM NAME =  MAIN

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    62K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL	STATEMENT NUMBERS												
NAT	0006													
NHT	0006													
NSR	0006													
VVT	0006													
POP	0006													
IBEG	0005													
INCR	0006													
IYRN	0009	0010	0010	0012	0012	0014	0015	0020	0021	0026	0027	0032	0036	0036
MILE	0006													
MYRd	0006													
MYRN	0006													
NIDD	0006													
NLEV	0006													
NYRN	0006	0009	0036											
RC11	0016	0018	0032											
RC12	0022	0024	0032											
RC13	0028	0030	0032											
VTOT	0006													
ALREG	0006													
ALWP1	0014	0032												
ALWP2	0020	0032												
ALWP3	0026	0032												
ARRAY	0002	0003	0014	0015	0015	0016	0016	0018	0020	0021	0021	0022	0022	0024
	0030													
DLWP1	0015	0016	0032											
DLWP2	0021	0022	0032											
DLWP3	0027	0028	0032											
GVTOT	0006													
ICONT	0005													
IDUMP	0005													
IPLOT	0005													
ITABS	0005	0008	0010	0010	0012									
JMASK	0005													
KMASK	0005													
MYREG	0006													
NTABS	0005													
RNAME	0005	0012												
TABLE	0002													
TITLE	0002	0004	0012											
IPRINT	0005													
ITABLE	0005	0007	0007	0012										
IVMASK	0005													
METMSK	0005													
MODMSK	0005													
MYKNET	0006	0032												
POPDEN	0006													
POPLIN	0006													
STOPGF	0006													
TOTPOP	0006													

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1000	0038	0009
9000	0040	0012
9001	0033	0032
9002	0041	0036
9003	0042	0035
9004	0043	0034

```
                                        / STRUCTURED SOURCE LISTING /
(002  ISN 0002            SUBROUTINE TABLE(ARRAY,TITLE)
                          CT TABLE      LAST UPDATE:
                          CX TABLE   TABULATES THE VARIOUS SEL & LEQ METRICS
                          C
                          C
      ISN 0003            DIMENSION ARRAY( 9,3)
      ISN 0004            REAL*8 TITLE(6)
      ISN 0005            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                     84   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IREG(7),
                     84   3IPLOT(7),ITABLE,ITABS,NTABS
      ISN 0006            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                     82   2POPDEN(4,9),POPLIN(4,9),GTOPGF(9,9),TOTPOP(9),
                     82   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                     82   4NIOD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
      ISN 0007            ITABLE = ITABLE + 1
      ISN 0008            ITABS = 0
                          C
      ISN 0009            DO 1000 IYRN = 1,NYRN
                          C
(001  ISN 0010            IF(IYRN.EQ.1.OR.IYRN.EQ.21) ITABS = ITABS + 1
      ISN 0012            IF(IYRN.EQ.1.OR.IYRN.EQ.21) WRITE(6,9000) ITABLE,ITABS,TITLE,
                         *RNAME
      ISN 0014            ALWP1 = ARRAY(IYRN,1)
      ISN 0015            DLWP1 = ARRAY(1,1) - ARRAY(IYRN,1)
      ISN 0016            IF(ARRAY(1,1).NE.0.0) RCI1  = DLWP1 / ARRAY(1,1)
      ISN 0018            IF(ARRAY(1,1).EQ.0.0) RCI1  = 0.0
      ISN 0020            ALWP2 = ARRAY(IYRN,2)
      ISN 0021            DLWP2 = ARRAY(1,2) - ARRAY(IYRN,2)
      ISN 0022            IF(ARRAY(1,2).NE.0.0) RCI2  = DLWP2 / ARRAY(1,2)
      ISN 0024            IF(ARRAY(1,2).EQ.0.0) RCI2  = 0.0
      ISN 0026            ALWP3 = ARRAY(IYRN,3)
      ISN 0027            DLWP3 = ARRAY(1,3) - ARRAY(IYRN,3)
      ISN 0028            IF(ARRAY(1,3).NE.0.0) RCI3  = DLWP3 / ARRAY(1,3)
      ISN 0030            IF(ARRAY(1,3).EQ.0.0) RCI3  = 0.0
                          C
      ISN 0032            WRITE(6,9001) MYRNET(IYRN),ALWP1,DLWP1,RCI1,ALWP2,DLWP2,RCI2,
                         *ALWP3,DLWP3,RCI3
      ISN 0033      9001  FORMAT(1X,T4,I4,T8,3(3X,1PE10.3,3X,E11.3,5X,2PF7.2,2X))
      ISN 0034            WRITE(6,9004)
      ISN 0035            WRITE(6,9003)
      ISN 0036            IF(IYRN.EQ.20.OR.IYRN.EQ.NYRN) WRITE(6,9002)
                          C
C--------
      ISN 0038      1000  CONTINUE
                          C
001)                      C
```

```
      ISN 0039            RETURN
                          C
                          C FORMAT STATEMENTS
                          C
002)                      C
      ISN 0040      9000  FORMAT('1'/'0',T5,'TABLE ',I2,'.',I2,4X,6A8,T110,5A4///
                         *' ',131('_')/1X,'|',T9,'|',3(40X,'|')/' ',T28,'DAY',
                         *T67,'NIGHT',T107,'TOTAL'/'+','|',T9,'|',3(40X,'|')/
                         *' |',T9,'|',3(40X,'|')/'+',7X,124('_')/' |',T9,'|',3(12X,
                         *'|',13X,'|',13X,'|')/1X,T4,'YEAR',T10,3(4X,'LWP',10X,
                         *'DLWP',11X,'RC1',6X)/'+|',T9,'|',3(12X,'|',13X,'|',13X,'|')
                         */' |',T9,'|',3(12X,'|',13X,'|',13X,'|')/'+',131('_')/
                         *' |',T9,'|',3(12X,'|',13X,'|',13X,'|'))
      ISN 0041      9002  FORMAT('+',131('_'))
      ISN 0042      9003  FORMAT(' |',T9,'|',3(12X,'|',13X,'|',13X,'|'))
      ISN 0043      9004  FORMAT('+|',T9,'|',3(12X,'|',13X,'|',13X,'|'))
      ISN 0044            END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      43, PROGRAM SIZE =     1290, SUBPROGRAM NAME = TABLE

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    122K BYTES OF CORE NOT USED
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REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																		
A	0003																		
I	0003	0029	0030	0030	0030	0032	0032	0040	0043	0043	0043	0071	0072	0081	0090	0098	0102	0106	0106
	0106	0108	0112	0114	0133														
J	0008	0042	0043	0043	0043	0043	0074	0075	0075	0076	0077	0080	0081	0085	0088	0093	0106	0112	0112
	0114	0120	0120	0125	0125	0125	0133	0144	0150	0164	0165	0171	0185	0231	0237				
K	0028	0030	0030	0030	0032	0032	0041	0043	0043	0043	0043								
L	0092	0093	0112	0112	0114	0120	0125	0133	0150	0171									
M	0031	0032	0032	0095	0096	0098	0102	0106	0106	0108	0112	0114	0133						
V	0005																		
ID	0079	0080	0081	0093	0112	0120	0125	0133	0144	0150	0164	0165	0171	0185	0231	0237			
IL	0104	0112	0114	0120	0125	0133	0144	0164	0165	0185	0231	0237							
IM	0025	0026	0056	0058	0059	0060	0062	0062	0081	0090	0112	0112	0114	0116	0116	0127	0127	0127	0129
	0129	0129	0131	0133	0140	0141	0144	0153	0153	0165	0174	0174	0202	0203	0222	0223	0229	0232	0248
	0253	0255	0258	0262	0262	0262	0263	0264	0267	0268	0269	0340	0341						
IT	0003	0080	0157	0164	0178	0185	0196	0215											
KA	0121	0122	0123	0125	0125	0209	0210	0215	0224	0225	0234	0235	0237						
KM	0058	0112	0112	0144	0157	0164	0165	0178	0185	0196	0215								
KB	0008	0084	0085	0086	0088	0093	0106	0106	0108	0112	0114	0120	0123	0125	0125	0133	0144	0150	0164
	0165	0171	0185	0210	0231	0235	0237												
X2	0003	0125																	
ADT	0003	0043																	
ALO	0003	0112	0114	0116	0117	0127	0129	0133	0138	0144	0145	0147	0150	0165	0166	0168	0171	0202	0222
	0229																		
COC	0007	0127	0129	0144	0153	0165	0174												
CZD	0003																		
DBK	0003																		
FIB	0017	0017	0140	0141	0202	0203	0222	0223	0229										
IFM	0008	0059																	
JCP	0149	0156	0159	0161	0161	0202	0203	0203	0204	0205									
JCB	0170	0177	0180	0182	0182	0222	0223	0223	0224	0225									
KOM	0007	0058																	
MYR	0003																		
NAT	0004	0042	0074																
NHT	0004	0041	0084	0121	0209	0234													
NID	0076	0079																	
NSR	0004	0092																	
NVT	0004	0040	0071																
PGF	0003	0075	0120	0125															
POP	0004																		
SUM	0030	0032																	
VAF	0003	0045																	
VGF	0003	0045																	
VML	0003	0035	0102	0106															
ACCM	0008	0069	0253																
ACEV	0008																		
ADBL	0007	0138	0156	0161	0177	0182	0197	0198	0202	0203	0203	0217	0218	0222	0223	0223			
AREA	0003																		
BRCP	0155	0159	0161	0163	0166														
BRCS	0176	0180	0182	0184	0188														

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																	
CHCP	0156	0163	0167	0205														
CHCS	0177	0184	0189	0225														
DHAT	0196	0199	0200	0215	0219	0220												
EDGE	0005																	
FIMP	0007																	
FRIN	0007	0090	0118	0119														
GAMM	0005																	
IBEG	0006	0275	0276	0277	0278	0283	0305	0307	0309	0311	0313	0325	0327	0329	0331	0333		
IDAY	0068	0069	0089	0090	0090	0090	0252	0253	0253									
IEVB	0008	0085																
IFIX	0018																	
IM56	0008	0057	0065	0255														
INCR	0004																	
IPER	0005	0106	0108															
IRDB	0194	0195	0196	0214	0215	0216												
ISUM	0335	0336																
IVAF	0003																	
IVBD	0003																	
IVGF	0003	0045																
IYRN	0008	0022	0023	0034	0038	0075	0133	0267	0268	0269	0275	0276	0277	0278	0279	0280	0281	0282	0283
	0341	0341	0341															
JADB	0067	0069	0195	0197	0198	0199	0200	0216	0217	0218	0219	0220	0230	0231	0237	0251	0253	0253	0261
	0262	0262	0262	0263	0264	0274	0275	0275	0276	0276	0277	0277	0278	0278	0279	0279	0280	0280	0281
	0281	0282	0282	0283	0283													
JCOC	0007																	
JFLO	0005	0043																
JPGF	0003	0075	0120	0125														
KFLO	0005	0043																
KPER	0005	0106	0108															
LANE	0003	0043	0088															
LIFE	0003	0045																
MAXO	0018																	
MILE	0004	0093																
MINO	0018	0218																
MYRB	0004																	
MYRE	0003																	
MYRN	0004																	
NADB	0007	0230																
NIDD	0004	0076																
NLEV	0004	0098																
NPMK	0003																	
NRDB	0007																	
NYRN	0004	0022	0338	0341														
PACT	0007	0040																
PGFO	0003																	
RDBL	0007	0155	0176	0202	0222													
REMD	0003	0045																
REPZ	0005	0164	0231															
TDAY	0259	0263	0263	0266	0267													
VINC	0003																	
VPOP	0003	0035																
VTOT	0004																	
XINC	0003																	
YEAR	0015	0023	0024	0035	0081	0271												
YINC	0003																	

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																
ZERO	0064																
ACLWP	0008	0064															
ALMAX	0010	0026	0116	0116	0271												
ALREG	0004	0112	0114														
AMAXI	0116	0144	0156	0165	0177	0202	0203	0222	0223								
AMINI	0155	0176															
AVDBL	0007																
BDISP	0138	0139	0140	0142	0155	0161	0161	0176	0182	0182							
BVPOP	0003	0043	0045														
CDISP	0139	0141															
DELRP	0157	0164	0186	0187													
DELRS	0178	0185	0188	0189													
DLLEV	0007	0112															
DLPBI	0007	0114															
DNTOT	0010	0262	0271	0275	0276	0277	0278	0279	0280	0281	0282	0283					
DPLUS	0140	0197	0202	0217	0222												
DVTOT	0004																
ICLIP	0018	0197	0198	0202	0203	0217	0218	0222	0223	0229							
ICONT	0006	0019	0048	0050	0081	0100	0106	0108	0110	0112	0114	0190	0207	0232	0286	0289	0345
IDUMP	0006	0035	0045	0248	0271												
IFIMP	0007	0059															
ILOBP	0148	0150	0150	0150	0192	0194											
ILOBS	0169	0171	0171	0171	0212	0214											
ILIM1	0197	0199	0202	0204	0217	0219	0222	0224	0229	0231	0237						
ILIM2	0198	0200	0203	0205	0218	0220	0223	0225									
INOUT	0007	0112															
IPACT	0007	0090															
IPCUT	0147	0148	0149	0155	0157	0164	0202										
IPLOT	0006	0335	0335	0335	0335	0335	0335	0335	0338								
ISCUT	0168	0169	0170	0176	0178	0185	0222										
ITABS	0006																
JADBO	0117	0133	0133	0136	0138	0149	0150	0170	0171	0195	0216	0230					
JMASK	0006	0077															
JPCUT	0146	0159	0161														
JSCUT	0167	0180	0182														
JWYLE	0003	0080															
KMASK	0006	0086															
LEVEL	0099	0100	0102	0106	0112	0114	0133										
MYREF	0003	0045															
MYREG	0004																
NLANE	0088	0104	0108	0110													
NTABS	0006																
PCOLV	0144	0145	0146	0147	0153	0156	0161	0202	0203								
PLDEN	0007	0120															
PNORM	0008	0032	0108														
RATIO	0007	0164	0185														
REDGE	0005	0185	0237														
RNAME	0006	0035	0045	0045	0045	0271	0338										
RPCOL	0145	0155															
RBCOL	0166	0176															
SCOLV	0165	0166	0167	0168	0174	0177	0182	0222	0223								
SHIFT	0007	0112															
TABLE	0291	0293	0295	0297	0299	0301	0303										
TNITE	0260	0264	0264	0266	0268												
TOTAL	0264	0269															

*****FORTRAN CROSS REFERENCE LISTING*****

SYMBOL	INTERNAL STATEMENT NUMBERS																		
VBD74	0003																		
VBD77	0003																		
VBD85	0003																		
VBD90	0003																		
VNTDB	0006																		
WIDTH	0003																		
ADTFAC	0016	0016	0090																
ANNMET	0011	0013	0267	0268	0269	0341													
BRATIO	0142	0143	0199	0219															
COLECT	0199	0200	0204	0205	0219	0220	0224	0225	0231	0237									
CRATIO	0143	0200	0220																
DBBAND	0305	0307	0309	0311	0313	0315	0317	0319	0321										
DELBRP	0186	0204																	
DELBRS	0188	0224																	
DELCRP	0187	0205																	
DELCRS	0189	0225																	
DJKLEV	0007	0112																	
DMINUS	0141	0198	0203	0218	0223														
DRATIO	0007	0157	0178	0196	0215														
EDGEPZ	0005																		
EVENTS	0055																		
EVNTDB	0325	0327	0329	0331	0333														
EVPROB	0007	0043	0045	0106															
FLOMIX	0005	0043																	
FPAREA	0003																		
FPROAD	0003																		
IEQAGE	0003																		
IPRINT	0006	0053	0062	0305	0307	0309	0311	0313	0315	0317	0319	0321	0323	0343	0347	0349			
ITABLE	0006																		
IVMASK	0006	0072																	
KBJEVB	0008	0085																	
LCOUNT	0066	0105	0105	0248															
LEQ1DB	0010	0014	0281	0319															
LEQ2DB	0010	0014	0282	0321															
LMFPXP	0012	0303																	
METMSK	0006	0060	0291	0293	0295	0297	0299	0301	0303	0305	0307	0309	0311	0313	0315	0317	0319	0321	0325
	0327	0329	0331	0333															
METRIC	0007	0014	0253	0262	0262	0263	0264	0271											
MODMSK	0006	0096																	
MYRNET	0004	0023	0338																
NEVENT	0014	0106	0108	0110	0118	0119													
NLEVEL	0098	0099																	
NORMAL	0255																		
NPMILE	0003																		
PDSPDB	0010	0283	0313																
PEDSPC	0012	0299																	
PERCNT	0005	0030	0030	0030	0032	0106													
PLOPGF	0120	0196	0204	0205	0231														
POPDEN	0004																		
POPLTN	0004																		
PRINTS	0343																		
PRNT10	0347																		
PRNT11	0349																		
RDBCUT	0007	0165																	
RDBEDG	0007	0144																	

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS						
SELPXP	0012	0301					
SEL10B	0010	0279	0315				
SEL20B	0010	0280	0317				
SEPPGF	0009	0122	0125	0215	0224	0225	0237
SEPROR	0007	0125					
SLPA0B	0010	0276	0307				
SLPAWK	0012	0293					
SLPD0B	0010	0275	0305				
SLPD3P	0012	0013	0291				
SPCHIN	0012	0295					
SPCOUT	0012	0297					
SPEX0B	0010	0278	0311				
SPIN0B	0010	0277	0309				
STOPGF	0004	0075					
TIMSTR	0002						
TOTPOP	0004						
UPDATE	0024						
VEHPOP	0034						
VNTDAY	0008	0118					
VNTNIT	0008	0119					
WDTHPZ	0005						

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES				
50	0022					
5000	0285	0022	0048			
5001	0021	0019				
5002	0288	0286				
5120	0027	0025				
5130	0033	0028	0029	0031		
5200	0037	0035				
5300	0044	0040	0041	0042		
5304	0048	0038				
5306	0047	0045				
5490	0052	0050				
5500	0056	0053				
5505	0066	0062				
5510	0257	0056	0060			
5511	0070	0067	0068			
5512	0247	0071	0072			
5513	0248	0074	0077			
5514	0245	0079				
5516	0083	0081				
5520	0244	0084	0086			
5521	0091	0089				
5522	0243	0092	0093			
5523	0242	0095	0096			
5524	0241	0099	0100	0102		
5525	0240	0104	0127	0136	0207	0228
5550	0126	0121	0123			
5594	0135	0131				
5610	0159	0153				
5619	0152	0150				
5620	01	0158				

*****FORTRAN CROSS REFERENCE LISTING*****

LABEL	DEFINED	REFERENCES
5621	0180	0174
5629	0173	0171
5710	0186	0179
5711	0201	0194
5713	0202	0192
5715	0209	0190
5730	0227	0209 0210
5731	0221	0214
5733	0222	0212
5800	0229	0129 0131
5801	0239	0232
5802	0238	0234 0235
5809	0250	0248
5900	0254	0251 0252
5902	0270	0258
5903	0265	0261
5904	0284	0274
5908	0273	0271
5950	0335	0323
6001	0349	0345
6002	0343	0289 0336
6003	0342	0341
6004	0339	0338
6005	0341	0340

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/ STRUCTURED SOURCE LISTING /

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(032  ISN 0002            SUBROUTINE TIMSTR
                          C
                          Cx TIMSTR : TIMESTREAM OF THE SINGLE EVENT MODEL
                          C
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                     B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                     B1   3VML(14,4,5),A(2,3),DBK(3),CZD(9,6),PGF(5),
                     B1   4PGF0(5),KIDTH(9,6),FPROAD(9,6),ADT(6,9),
                     B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                     B1   6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
                     B1   7MYREF(6),IVBO(14),LIFE(4),IEQAGE(6),JAYLE(9,4),
                     B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
                          C
                          C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                          C
      ISN 0004            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                     B2   2PGPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
                     B2   3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRMET(9),
                     B2   4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NMT,NSR
                          C
                          C END PRINT  COMMON BLOCK
                          C
      ISN 0005            COMMON /BIG003/ GAMM(6,9),V(5),EDGE(4,9),EDGEPZ(4,9,6),
                     B3   2WDTHPZ(4,9),FLOMIX(14,4,5),PERCNT(4,2,4),
                     B3   3REPZ(4,9,6,4),REDGE(4,9,6,4),
                     B3   4JFLG(9),KFLU(6),KPER(6),IPER(14)
      ISN 0006            COMMON /BIG004/ RNAME(5),IVMASK(14),IDUMP(12),IPRINT(12),JMASK(9),
                     B4   2KMASK(6),METMSK(7),ICONT(12),MODMSK(3),IBEG(7),
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                B4    3IPLOT(7),ITABLE,ITABS,NTABS
                      C
     ISN 0007         COMMON /BIG005/ RATIO(18,3,2),DRATIO(17,3,2),ADBL(21),RDBL(18),
                B5    2PLDEN(4,9,6,5,4),SEPRDB(4,9,6,6,5),
                B5    3RDBEDB(4,9,6,4,2),RDBOUT(4,9,6,4,2),DLPSI(9,6,4),
                B5    4METRIC(20,7,2),OJKLEV(9,6,4,2),OLLEV(5,2),
                B5    5PACT(5,2),FRTN(2),CUC(7),EVPROB(14,9,6),
                B5    6FIMP(80,5),SHIFT(4,9,2),AVDBL(20),IPACT(7),
                B5    7IFIMP(7),JCUC(7),INOUT(7),KOM(7),NADB,NRDB
                      C
     ISN 0008         COMMON/BIG006/PNORM(3,2,4),ACEV(6,9),IYRN,IFM,
                B6    1ACCM(20,2),VNTDAY,VNTNIT,IEVB(6,9),KS,J,
                B6    2VNTDB(15,11,5,9),ACLWP(15,21),KSJEVB,IM56
                      C
                      C SECTION 41     DATA AND SPECIFICATION STATEMENTS
                      C
     ISN 0009         DIMENSION SEPPGF(6)
     ISN 0010         DIMENSION DNTOT(20,7),ALMAX(7),
                     *SLPDDB(10,9),SLPADB(10,9),SPINDB(10,9),
                     *SPEXDB(10,9),SEL1DB(10,9),SEL2DB(10,9),
                     *LEG1DB(10,9),LEG2DB(10,9),PDSPDB(10,9)
     ISN 0011         REAL      ANNMET(9,3,7)
     ISN 0012         COMMON    SLPDSP(9,3),SLPAWK(9,3),SPCAIN(9,3),SPCOUT(9,3),
                     *SELPXP(9,3),LWPPXP(9,3),PEDSPC(9,3)
     ISN 0013         EQUIVALENCE (ANNMET(1),SLPDSP(1))
     ISN 0014         REAL      NEVENT,METRIC,LEG1DB,LEG2DB
     ISN 0015         INTEGER   YEAR
     ISN 0016         REAL      ADJFAC(14,2)/
                      C
                      C  I=         1-9        10        11        12        13-14
                      C
                DAY  >9* 0.870,    0.625,    0.840,    1.000,    2* 0.87,
                NITE >9* 0.130,    0.375,    0.160,    0.000,    2* 0.13/
                      C
     ISN 0017         REAL FIB(7)/36.,49.,44.,54.,29.,29.,54./
                      C
                      C SECTION 41.1   DEFINE CLIPPER FUNCTION
                      C
     ISN 0018         ICLIP(X) = MIN0(80,MAX0(1,IFIX(X)))
                      C
                      C SECTION 50     TIME STREAM LOOP. IYRN=ORDINAL OF A NET YEAR, YEAR
                      C
     ISN 0019         IF (ICONT(9).EQ.1) WRITE(6,5001)
     ISN 0021   5001   FORMAT('    SECTION 50 BEGINNING OF TIMESTREAM.')
                      C
     ISN 0022     50   DO 5000 IYRN   = 1,NYRN
                      C
(031 ISN 0023         YEAR=KYRNET(IYRN)
                      C
                      C SECTION 51     COMPUTE POPULATION GROWTH FACTOR IN THE CURRENT YEAR
                      C
     ISN 0024         CALL UPDATE(YEAR)
                      C
                      C SECTION 51.2  INITIALIZE MAJOR DB BAND ACCUMULATOR
                      C
     ISN 0025         DO 5120 IM=1,7
                      C
(029 ISN 0026         ALMAX(IM) = 0.0
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```
                      C
      ISN 0027  5120  CONTINUE
                      C
                      C SECTION 51.3  COMPUTE PNORM, NORMALIZED PERCNT.(FOR ICONT(8).EQ.1)
                      C
 029)                 C
      ISN 0028        DO 5130 K=1,2
 028  ISN 0029        DO 5130 I=1,4
                      C
 023  ISN 0030        SUM = PERCNT(1,K,I) + PERCNT(2,K,I) + PERCNT(3,K,I)
                      C
      ISN 0031        DO 5130 M=1,3
                      C
 017  ISN 0032        PNORM(M,K,I) = PERCNT(M,K,I) / SUM
                      C
      ISN 0033  5130  CONTINUE
                      C
                      C SECTION 52    CALL VEHPOP TO GET VPOP AND VML
                      C
 017)                 C
 023)                 C
 028)                 C
      ISN 0034        CALL VEHPOP(IYRN)
                      C
      ISN 0035        IF(IDUMP(7).EQ.1) WRITE(6,5200) YEAR,RNAME,VPOP,VML
      ISN 0037  5200  FORMAT('1#7 DUMP: VPOP',2X,14,T110,5A4/'0'/26(2X,14(-6PF8.4,1X)/)/
                D7    2'0#7 DUMP: VML'/'0'/20(2X,14(-6PF8.4,1X)/))
                      C
                      C SECTION 53     COMPUTE PASSBY EVENT PROBABILITY IN THE BASELINE YEAR
                      C
      ISN 0038        IF(IYRN.NE.1) GO TO 5304
                      C
      ISN 0040           DO 5300 I=1,NVT
 027  ISN 0041           DO 5300 K=1,NHT
 022  ISN 0042           DO 5300 J=1,NAT
                         C
 016  ISN 0043           EVPROB(I,J,K) = ADT(K,J) * FLOMIX(I,JFLO(J),KFLO(K)) /
                     *   BVPOP(I) / LANE(J,K)
                         C
      ISN 0044  5300     CONTINUE
                         C
 016)                    C
 022)                    C
 027)                    C
      ISN 0045           IF(IDUMP(8).EQ.1) WRITE(6,5306) RNAME,EVPROB,RNAME,BVPOP,
                     *   REMO,VGF,IVGF,RNAME,VAF,LIFE,MYREF
      ISN 0047  5306     FORMAT('1#8 DUMP: EVPROB',T110,5A4/'0'/54(1X,14(F8.6,1X)/)/
                D8    2  '1#8 DUMP: BVPOP',T110,5A4///1X,7E12.3/1X,7E12.3//
                D8    3  '0#8 DUMP: REMO'//17(1X,6E12.3/)/
                D8    4  '0#8 DUMP: VGF(IYRN,IVBD)'//24(2X,10(F5.3,1,' ')/)/
                D8    5  '0#8 DUMP: IVGF(I)'//3X,14(I1,2X)/
                D8    6  '1#8 DUMP: VAF(IVAF,IAGE)',T110,5A4//
                D8    6  13(9X,4F8.4,9X,4F8.4/)/
                D8    7  '0#8 DUMP: LIFE(IVAF)'/'0'/T10,4I3/
                D8    8  '0#8 DUMP: MYREF(IVBBD)'/'0'/T10,6I8)
                         C
                         C SECTION 53.1    SKIP IF VEHICLE POPULATION ONLY IS DESIRED
                         C
```

```
C-------
      ISN 0048     5304  IF(ICONT(1).EQ.1) GO TO 5000
      ISN 0050             IF (ICONT(9).EQ.1) WRITE(6,5490)
      ISN 0052     5490    FORMAT('      FINISHED SECTION 53')
                           C
                           C SECTION 55    COMPUTE AND SUM EXPOSURE AND IMPACT NUMBERS
                           C
                           C   SECTION 55.01    FIND THE EVENT BINS.
                           C
      ISN 0053             IF(IPRINT(7).NE.1) GO TO 5500
      ISN 0055                CALL EVENTS
                              C
                              C SECTION 55.1   SET UP LOOPS IN: IM,I,J,ID
                              C
                              C
C-------
      ISN 0056     5500    DO 5510 IM=1,7
(026  ISN 0057             IM56=0
                           C
      ISN 0058             KM     = KOM(IM)
      ISN 0059             IFM    = IFIMP(IM)
      ISN 0060             IF(METMSK(IM).EQ.0)                          GO TO 5510
      ISN 0062                IF(IPRINT(7).NE.1.OR.IM.EQ.5.OR.IM.EQ.6) GO TO 5505
      ISN 0064                   CALL ZERO(ACLWP,315)
      ISN 0065                   IM56=1
      ISN 0066     5505       LCOUNT = 0
                              C
)     ISN 0067                DO 5511 JADB=1,20
 (021 ISN 0068                DO 5511 IDAY=1,2
3                             C
5(015 ISN 0069                ACCM(JADB,IDAY) = 0.0
                              C
      ISN 0070     5511       CONTINUE
                              C
 015)                         C
 021)                         C
      ISN 0071                DO 5512 I=1,NVT
                              C
(019  ISN 0072                IF(IVMASK(I).EQ.0)                           GO TO 5512
                              C
      ISN 0074                   DO 5513 J      = 1,NAT
                                 C
(014  ISN 0075                   STOPGF(J,IYRN)=PGF(JPGP(J))
      ISN 0076                   NID    = NIDD(J)
      ISN 0077                   IF(JMASK(J).EQ.0)                          GO TO 5513
                                 C
      ISN 0079                      DO 5514 ID     = 1,NID
                                    C
(012  ISN 0080                      IT=JWYLE(J,ID)
      ISN 0081                      IF (ICONT(9).EQ.1) WRITE(6,5518)YEAR,IM,I,J,ID
      ISN 0083     5518             FORMAT('   SECTION 55.1  YEAR,IM,I,J,ID=',14,4I3)
                                    C
                                    C SECTION 55.2  KERNEL : LOOPS IN KS,L,M,LEVEL,IL
                                    C
      ISN 0084                      DO 5520 KS=1,NHT
(011  ISN 0085                      KSJEVB=IEVB(KS,J)
                                    C
      ISN 0086                      IF(KMASK(KS).EQ.0)                      GO TO 5520
```

```
      ISN 0088                    NLANE= LANE(J,KS)
                                  C
      ISN 0089                    DO 5521 IDAY=1,2
                                  C
(010  ISN 0090                    FRTN(IDAY) = PACT(IPACT(IM),IDAY) * ADTFAC(I,IDAY)
                                  C
      ISN 0091      5521          CONTINUE
                                  C
 010)                             C
      ISN 0092                    DO 5522 L=1,NSR
                                  C
(009  ISN 0093                    IF(MILE(KS,J,ID,L).EQ.0)                GO TO 5522
                                  C
      ISN 0095                       DO 5523 M=1,3
                                     C
(008  ISN 0096                       IF(MODMSK(M).EQ.0)                      GO TO 5523
      ISN 0098                          NLEVEL = NLEV(I,M)
                                        C
      ISN 0099                          DO 5524 LEVEL=1,NLEVEL
                                        C
(007  ISN 0100                          IF(ICONT(10).NE.0.AND.LEVEL.GT.1)       GO TO 5524
      ISN 0102                                                                  GO TO 5524
                                           IF(VML(I,M,LEVEL).LE.1.0)
      ISN 0104                             C
                                           DO 5525 IL=1,NLANE
(006  ISN 0105                            C
                                           LCOUNT = LCOUNT + 1
                                           C
                                           C SECTION 55.3   COMPUTE THE NUMBER OF PASSBY EVENTS
                                           C
C-201 ISN 0106                             IF(ICONT(10).EQ.0)   NEVENT = VML(I,M,LEVEL) * EVPROB(I,J,KS)
                                           * PERCNT(M,KPER(KS),IPER(I))
      ISN 0108                             IF(ICONT(10).EQ.1)   NEVENT = 1./ NLANE *
                                           PNORM(M,KPER(KS),IPER(I))
      ISN 0110                             IF(ICONT(10).EQ.2)   NEVENT = 1./ NLANE / 3.
                                           C
                                           C SECTION 55.4   COMPUTE THE NOISE LEVEL AT THE EDGE OF THE CLEAR ZONE
                                           C
      ISN 0112                             IF(ICONT(7).EQ.0.OR.IM.NE.7)
                                           AL0  = ALREG(LEVEL,L,M,I) + DJKLEV(J,KS,IL,KM) +
                                           DLLEV(L,KM) + SHIFT(ID,J,INOUT(IM))
      ISN 0114                             IF(ICONT(7).NE.0.AND.IM.EQ.7)
                                           AL0  = ALREG(LEVEL,L,M,I) + DLPSI(J,KS,IL)
      ISN 0116                             ALMAX(IM)    = AMAX1( AL0,ALMAX(IM))
      ISN 0117                             JADBO        = (135. - AL0) / 5
                                           C  SECTION 55.5   CONSTANTS USED IN SECTIONS 57 & 58.
                                           C
      ISN 0118                             VNTDAY = NEVENT * FRTN(1)
      ISN 0119                             VNTNIT = NEVENT * FRTN(2)
      ISN 0120                             PLDPGF = PLDEN(ID,J,KS,L,IL) * PGF(JPGF(J))
      ISN 0121                             DO 5550 KA=1,NAT
(005  ISN 0122                             SEPPGF(KA) = 6.02E23
      ISN 0123                             IF(KA.EQ.KS) GO TO 5550
      ISN 0125                             SEPPGF(KA) = SEPROB(ID,J,KS,KA,L3 *
                                           PGF(JPGF(J)) * X2(J,KS,IL)
                                           CONTINUE
C-------
      ISN 0126      5550                   C
                                           C SECTION 55.6   CHANNEL TO APPROPIATE PLACE IF AL0 LT CUTOFF CRITERION
```

```
005)
      ISN 0127                                C
      ISN 0129                                C
      ISN 0131                                IF(ALO.LE.COC(IM).AND.IM.NE.5.AND.IM.NE.6) GO TO 5525
      ISN 0133                                IF(ALO.LE.COC(IM).AND.(IM.EQ.5.OR.IM.EQ.6))GO TO 5800
                                              IF(IM.EQ.7)                                GO TO 5800
                                              IF(JADBO.LE.0)    WRITE(6,5594) IYRN,IM,I,J,ID,KS,L,M,LEVEL,
      ISN 0135      5594                      IL,JADBO,ALO
                                              FORMAT(' ','####WARNING: JADBO LT ZERO.(IYRN,IM,I,J,ID,KS,L,M,',
                                              'LEVEL,IL,JADBO,ALO)'/1X,11I6,F10.2)
                                              C
                                              C SECTION 56     COMPUTE BAND RATIOS, BAND DISPLACEMENTS & HALF WIDTHS
                                              C
      ISN 0136                                IF(JADBO.LE.0)                             GO TO 5525
      ISN 0138                                BDISP   = ALO - ADBL(JADBO+1)
      ISN 0139                                CDISP   = 5. - BDISP
      ISN 0140                                DPLUS   = BDISP / 2. - FIS(IM)
      ISN 0141                                DMINUS  = -CDISP / 2. - FIS(IM)
      ISN 0142                                BRATIO  = BDISP / 5.0
      ISN 0143                                CRATIO  = 1.0 - BRATIO
                                              C
                                              C SECTION 56.1  COMPUTE PRIMARY EXPOSURE CUTOFFS
                                              C
      ISN 0144                                PCOLV   = AMAX1( COC(IM),RDBEDG(ID,J,KS,IL,KM)+ALO)
      ISN 0145                                RPCOL   =  PCOLV - ALO
      ISN 0146                                JPCUT   = (135.-PCOLV)/5.
      ISN 0147                                IPCUT   = (5.-PCOLV+ALO)/5.
      ISN 0148                                ILDBP   = IPCUT - 1
      ISN 0149                                JCP     = JADBO + IPCUT - 1
      ISN 0150                                IF(ILDBP.GE.17.OR.ILDBP.LT.0) WRITE(6,5619) ID,J,KS,L,ALO,
      ISN 0152      5619                      JADBO,ILDBP
                                              FORMAT('0'/'0','ID,J,KS,L=',4I4,' ALO=',F10.3,' JADBO,ILDBP=',2I4)
      ISN 0153                                C
      ISN 0155                                IF(PCOLV.NE.COC(IM).OR.IM.GT.4)   GO TO 5610
      ISN 0156                                BRCP  = AMIN1(BDISP,RDBL(IPCUT)-RPCOL)/5.
      ISN 0157                                CRCP  = AMAX1(0.0,ADBL(JCP+1)-PCOLV)/5.0
      ISN 0158                                DELRP = DRATIO(IPCUT,IT,KM)
C-------                                      GO TO 5620
      ISN 0159      5610                      IF(JCP.EQ.JPCUT)   BRCP = 1.
      ISN 0161                                IF(JCP.EQ.JPCUT-1) BRCP = BDISP/(ADBL(JCP+1)- PCOLV+ BDISP)
      ISN 0163                                CRCP = 1.0 - BRCP
      ISN 0164                                DELRP    = (REPZ(ID,J,KS,IL) - RATIO(IPCUT,IT,KM))
                                              C
                                              C SECTION 56.2  COMPUTE SECONDARY EXPOSURE CUTOFFS
                                              C
C-------
      ISN 0165      5620                      SCOLV   = AMAX1( COC(IM),RDBCUT(ID,J,KS,IL,KM)+ALO)
      ISN 0166                                RSCOL   = SCOLV - ALO
      ISN 0167                                JSCUT   = (135. - SCOLV)/5.
      ISN 0168                                ISCUT   = (5. - SCOLV+ALO)/5.
      ISN 0169                                ILDBS   = ISCUT - 1
      ISN 0170                                JCS     = JADBO + ISCUT - 1
      ISN 0171                                IF(ILDBS.GE.17.OR.ILDBS.LT.0) WRITE(6,5629) ID,J,KS,L,ALO,
      ISN 0173      5629                      JADBO,ILDBS
                                              FORMAT('0'/'0','ID,J,KS,L=',4I4,' ALO=',F10.3,' JADBO,ILDBS=',2I4)
      ISN 0174                                C
      ISN 0176                                IF(SCOLV.NE.COC(IM).OR.IM.GT.4)   GO TO 5621
                                              BRCS  = AMIN1(BDISP,RDBL(ISCUT)-RSCOL)/5.
```

```
      ISN 0177                          CRCS  = AMAX1(0.,ADBL(JCS+1)-SCOLV)/ 5.0
      ISN 0178                          DELRS = DRATIO(ISCUT,IT,KM)
      ISN 0179                          GO TO 5710
C-------
      ISN 0180      5621                IF(JCS.EQ.JSCUT)   BRCS = 1.
      ISN 0182                          IF(JCS.EQ.JSCUT-1) BRCS = BDISP/(ADBL(JCS+1)- SCOLV+ BDISP)
      ISN 0184                          CRCS = 1.0 - BRCS
      ISN 0185                          DELRS    = (REDGE(ID,J,KS,IL) * RATIO(ISCUT,IT,KM))
                                        C
                                        C SECTION 57.1  PRIMARY EXPOSURE
                                        C
C-------
      ISN 0186      5710                DELBRP = DELRP * BRCP
      ISN 0187                          DELCRP = DELRP * CRCP
      ISN 0188                          DELBRS = DELRS * BRCS
      ISN 0189                          DELCRS = DELRS * CRCS
      ISN 0190                          IF(ICONT(2).EQ.2) GO TO 5715
      ISN 0192                          IF(ILDBP.EQ.0) GO TO 5713
                                        C
      ISN 0194                          DO 5711 IRDB=1,ILDBP
                                        C
(002  ISN 0195                          JADB  = JADB0-1+IRDB
      ISN 0196                          DRAT = DRATIO(IRDB,IT,KM) * PLDPGF
      ISN 0197                          ILIM1 = ICLIP(ADBL(JADB+1)+DPLUS)
      ISN 0198                          ILIM2 = ICLIP(ADBL(JADB+1)+DMINUS)
                                        C
                                        C DEL DO 5712 IDAY=1,2
                                        C
      ISN 0199                          CALL COLECT(DRAT*BRATIO,ILIM1,JADB)
                                        C DEL      ACCM(JADB,IDAY)          =  ACCM(JADB,IDAY)      +
                                        C DEL*           PLDEN(ID,J,KS,L,IL) * PGF(JPGF(J)) *
                                        C DEL*           DRATIO(IRDB,IT,KM) * BRATIO * FIMP(ILIM1,IFM)  *
                                        C DEL*           NEVENT * FRTN(IDAY)
      ISN 0200                          CALL COLECT(DRAT*CRATIO,ILIM2,JADB+1)
                                        C DEL      ACCM(JADB+1,IDAY)        =  ACCM(JADB+1,IDAY)  +
                                        C DEL*           PLDEN(ID,J,KS,L,IL) * PGF(JPGF(J)) *
                                        C DEL*           DRATIO(IRDB,IT,KM) * CRATIO * FIMP(ILIM2,IFM)
                                        C DEL*           * NEVENT * FRTN(IDAY)
                                        C
                                        C5712  CONTINUE   DEL
      ISN 0201      5711                CONTINUE
                                        C
                                        C
 002)
C-------
      ISN 0202      5713                ILIM1 = ICLIP(AMAX1( (PCOLV + AL0 + RDBL(IPCUT)) /2.-FIS(IM),
                  *                     ADBL(JCP+1) + DPLUS  ))
      ISN 0203                          ILIM2 = ICLIP(AMAX1( (PCOLV + ADBL(JCP+1)) / 2. - FIS(IM),
                  *                     ADBL(JCP+1) + DMINUS  ))
                                        C
                                        C DEL DO 5714 IDAY = 1,2
                                        C
      ISN 0204                          CALL COLECT(PLDPGF*DELBRP,ILIM1,JCP)
                                        C DEL             ACCM(JCP,IDAY)       = ACCM(JCP,IDAY)  +
                                        C DEL*                      PLDEN(ID,J,KS,L,IL) * PGF(JPGF(J)) * DELRP *
                                        C DEL*                      BRCP * FIMP(ILIM1,IFM) * NEVENT * FRTN(IDAY)
      ISN 0205                          IF(CRCP.GT.0.0)
                  1                     CALL COLECT(PLDPGF*DELCRP,ILIM2,JCP+1)
                                        C DEL*           ACCM(JCP+1,IDAY)        = ACCM(JCP+1,IDAY)  +
```

```
                                        C DEL*                    PLOEN(ID,J,KS,L,IL) * PGF(JPGF(J)) * DELRP *
                                        C DEL*                    CRCP * FIMP(ILIM2,IFM) * NEVENT * FRTN(IDAY)
                                        C
                                        C5714  CONTINUE   DEL
                                        C
                                        C SECTION 57.2  SKIP SECONDARY EXPOSURE IF ICONT(2)=1
                                        C
      ISN 0207                          IF(ICONT(2).EQ.1)   GO TO 5525
                                        C
                                        C SECTION 57.3  SECONDARY EXPOSURE!
                                        C
C--------
      ISN 0209      5715                DO 5730  KA=1,NHT
                                        C
(003  ISN 0210                          IF(KA.EQ.KS)  GO TO 5730
      ISN 0212                          IF(ILDBS.EQ.0) GO TO 5733
                                        C
      ISN 0214                          DO 5731 IRDB=1,ILDBS
                                        C
(001  ISN 0215                          DRAT = DRATIO(IRDB,IT,KM) * SEPPGF(KA)
      ISN 0216                          JADB  = JADB0-1+IRDB
      ISN 0217                          ILIM1 = ICLIP(ADBL(JADB+1)+DPLUS)
      ISN 0218                          ILIM2 = ICLIP(ADBL(JADB+1)+DMINUS)
                                        C
                                        C DEL DO 5732 IDAY=1,2
                                        C
      ISN 0219                          CALL COLECT(DRAT*BRATIO,ILIM1,JADB)
                                        C DEL      ACCM(JADB,IDAY)          =  ACCM(JADB,IDAY)   +
                                        C DEL*           SEPROB(ID,J,KS,KA,L) * PGF(JPGF(J)) * X2(J,KS,IL) *
                                        C DEL*           DRATIO(IRDB,IT,KM) * BRATIO * FIMP(ILIM1,IFM) *
                                        C DEL*           NEVENT * FRTN(IDAY)
      ISN 0220                          CALL COLECT(DRAT*CRATIO,ILIM2,JADB+1)
                                        C DEL      ACCM(JADB+1,IDAY)        =  ACCM(JADB+1,IDAY)   +
                                        C DEL*           SEPROB(ID,J,KS,KA,L) * PGF(JPGF(J)) * X2(J,KS,IL) *
                                        C DEL*           DRATIO(IRDB,IT,KM) * CRATIO * FIMP(ILIM2,IFM) *
                                        C DEL*           NEVENT * FRTN(IDAY)
                                        C
      ISN 0221      5731                C5732  CONTINUE   DEL
                                        CONTINUE
                                        C
 001)                                   C
C--------
      ISN 0222      5733                ILIM1 = ICLIP(AMAX1( (SCOLV + ALO + RDBL(ISCUT)) /2.-FIS(IM),
                          *             ADBL(JCS+1) + DPLUS  ))
      ISN 0223                          ILIM2 = ICLIP(AMAX1( (SCOLV + ADBL(JCS+1)) / 2. - FIS(IM),
                          *             ADBL(JCS+1) + DMINUS  ))
                                        C
                                        C DEL DO 5734 IDAY = 1,2
                                        C
      ISN 0224                          CALL COLECT(SEPPGF(KA)*DELBRS,ILIM1,JCS)
                                        C DEL            ACCM(JCS,IDAY)       = ACCM(JCS,IDAY)   +
                                        C DEL*           SEPROB(ID,J,KS,KA,L) * PGF(JPGF(J)) * X2(J,KS,IL) *
                                        C DEL*           DELRS * BRCS * FIMP(ILIM1,IFM) * NEVENT * FRTN(IDAY)
      ISN 0225                          IF(CRCS.GT.0.0)
                          1             CALL COLECT(SEPPGF(KA)*DELCRS,ILIM2,JCS+1)
                                        C DEL*           ACCM(JCS+1,IDAY)       = ACCM(JCS+1,IDAY)   +
                                        C DEL*           SEPROB(ID,J,KS,KA,L) * PGF(JPGF(J)) * X2(J,KS,IL) *
                                        C DEL*           DELRS *  CRCS * FIMP(ILIM2,IFM) * NEVENT * FRTN(IDAY)
```

```
                                        C
                                        C5734  CONTINUE  DEL
                                        C
C-------
      ISN 0227     5730                 CONTINUE
                                        C
                                        C
 003)
      ISN 0228                          GO TO 5525
                                        C
                                        C SECTION 58       PEDESTRIAN CASE OR JADBO GE NADB
                                        C
C-------
      ISN 0229     5800                 ILIM1 = ICLIP(ALO-FIS(IN))
      ISN 0230                          JADB   = MINO(NADB,JADBO)
                                        C
                                        C DEL DO 5801 IDAY=1,2
                                        C
                                        CALL COLECT(PLDPGF*(REPZ(ID,J,KS,IL)-1.),ILIM1,JADB)
      ISN 0231                          C DEL      ACCM(JADB,IDAY)       =  ACCM(JADB,IDAY)    +
                                        C DEL*          (REPZ(ID,J,KS,IL)-1.0) * PLDEN(ID,J,KS,L,IL) *
                                        C DEL*          PGF(JPGF(J)) * FIMP(ILIM1,IFM) * NEVENT * FRTN(IDAY)
                                        C
      ISN 0232                          IF(ICONT(2).EQ.1.OR.IM.EQ.7)  GO TO 5801
      ISN 0234                          DO 5802 KA=1,NHT
                                        C
 (004 ISN 0235                          IF(KA.EQ.KS) GO TO 5802
      ISN 0237                          CALL COLECT(SEPPGF(KA)*(REDGE(ID,J,KS,IL)-1.),ILIM1,JADB)
                                        C DEL      ACCM(JADB,IDAY)       =  ACCM(JADB,IDAY)    +
                                        C DEL*               (REDGE(ID,J,KS,IL)-1.0) * SEPROB(ID,J,KS,KA,L) *
                                        C DEL*               X2(J,KS,IL) * PGF(JPGF(J)) * FIMP(ILIM1,IFM) *
                                        C DEL*               NEVENT * FRTN(IDAY)
                                        C
C-------
      ISN 0238     5802                 CONTINUE
                                        C
 004)                                   C
C-------
      ISN 0239     5801                 CONTINUE
                                        C
                                        C
C-------
      ISN 0240     5525                 CONTINUE
 006)                                   C
      ISN 0241     5524               CONTINUE
                                      C
 007)                                 C
      ISN 0242     5523             CONTINUE
 008)                               C
      ISN 0243     5522           CONTINUE
 009)                             C
      ISN 0244     5520         CONTINUE
 011)                           C
      ISN 0245     5514         CONTINUE
 012)                           C
      ISN 0246     5513       CONTINUE
 014)                         C
      ISN 0247     5512     CONTINUE
                            C
```

```
019)                                C
      ISN 0248                      IF(IDUMP(9).EQ.1) WRITE(6,5809) IM,LCOUNT
      ISN 0250      5809            FORMAT('0','#9 DUMP: IM,COUNT',13,2X,I12)
                                    C
                                    C SECTION 59  SORT AND STORE METRICS
                                    C
      ISN 0251                      DO 5900 JADB=1,20
(018  ISN 0252                      DO 5900 IDAY=1,2
                                    C
(013  ISN 0253                      METRIC(JADB,IM,IDAY) = ACCM(JADB,IDAY)
                                    C
      ISN 0254      5900            CONTINUE
 013)                               C
 018)                               C
      ISN 0255                      IF(IM56.EQ.1) CALL NORMAL(IM)
                                    C
      ISN 0257      5510      CONTINUE
                              C
 026)                         C
      ISN 0258                DO 5902 IM=1,7
(025  ISN 0259                TDAY = 0.0
      ISN 0260                TNITE = 0.0
      ISN 0261                DO 5903 JADB=1,20
(020  ISN 0262                DNTOT(JADB,IM) = METRIC(JADB,IM,1) + METRIC(JADB,IM,2)
      ISN 0263                TDAY = TDAY + METRIC(JADB,IM,1)
      ISN 0264                TNITE = TNITE + METRIC(JADB,IM,2)
      ISN 0265      5903      CONTINUE
 020)                         C
      ISN 0266                TOTAL = TDAY + TNITE
      ISN 0267                ANNMET(IYRN,1,IM) = TDAY
      ISN 0268                ANNMET(IYRN,2,IM) = TNITE
      ISN 0269                ANNMET(IYRN,3,IM) = TOTAL
      ISN 0270      5902      CONTINUE
 025)                         C
      ISN 0271                IF(IDUMP(9).EQ.1) WRITE(6,5908) YEAR,RNAME,METRIC,DNTOT,ALMAX
      ISN 0273      5908      FORMAT('1#9 DUMP: YEAR =',I4,T110,5A4/
                    D9   2    '0#9 DUMP: METRIC'/'0'/28(1X,1P10E10.3/)/
                    D9   3    '0#9 DUMP: DNTOT'/'0'/14(1X,1P10E10.3/)/
                    D9   4    '0#9 DUMP: ALMAX'/'0',7(0PF9.2))
                              C
                              C          ASSIGN YEARLY DBBAND IMPACT METRICS
                              C
      ISN 0274                DO 5904 JADB=1,10
                              C
(024  ISN 0275                SLPDDB(JADB,IYRN) = DNTOT(JADB+IBEG(1),1)
      ISN 0276                SLPADB(JADB,IYRN) = DNTOT(JADB+IBEG(2),2)
      ISN 0277                SPINDB(JADB,IYRN) = DNTOT(JADB+IBEG(3),3)
      ISN 0278                SPEXDB(JADB,IYRN) = DNTOT(JADB+IBEG(4),4)
      ISN 0279                SEL1DB(JADB,IYRN) = DNTOT(JADB,5)
      ISN 0280                SEL2DB(JADB,IYRN) = DNTOT(JADB+10,5)
      ISN 0281                LEQ1DB(JADB,IYRN) = DNTOT(JADB,6)
      ISN 0282                LEQ2DB(JADB,IYRN) = DNTOT(JADB+10,6)
      ISN 0283                PDSPDB(JADB,IYRN) = DNTOT(JADB+IBEG(7),7)
      ISN 0284      5904      CONTINUE
                              C
 024)                         C
      ISN 0285      5000  CONTINUE
 031)                       C
```

```
ISN 0286            IF (ICONT(9).EQ.1) WRITE(6,5002)
ISN 0288      5002  FORMAT('     END OF TIMESTREAM.')
                    C
                    C SECTION 60    END OF TIMESTREAM, PRINT OUT STORED DATA
                    C
ISN 0289            IF(ICONT(1).EQ.1) GO TO 6002
ISN 0291              IF(METMSK(1).EQ.1) CALL TABLE(SLPDSP,
                   *  'SLEEP DISRUPTION METRICS                          ')
ISN 0293              IF(METMSK(2).EQ.1) CALL TABLE(SLPAWK,
                   *  'SLEEP AWAKENING METRICS                           ')
ISN 0295              IF(METMSK(3).EQ.1) CALL TABLE(SPCHIN,
                   *  'INDOOR SPEECH INTERFERENCE METRICS                ')
ISN 0297              IF(METMSK(4).EQ.1) CALL TABLE(SPCOUT,
                   *  'OUTDOOR SPEECH INTERFERENCE METRICS               ')
ISN 0299              IF(METMSK(7).EQ.1) CALL TABLE(PEDSPC,
                   *  'PEDESTRIAN SPEECH INTERFERENCE METRICS            ')
ISN 0301              IF(METMSK(5).EQ.1) CALL TABLE(SELPXP,
                   *  'SEL PEXP                                          ')
ISN 0303              IF(METMSK(6).EQ.1) CALL TABLE(LWPPXP,
                   *  'LEQ PEXP                                          ')
ISN 0305              IF(METMSK(1).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(IBEG(1),
                   *  SLPDDB,'SLEEP DISRUPTION IN DB BANDS                ')
ISN 0307              IF(METMSK(2).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(IBEG(2),
                   *  SLPADB,'SLEEP AWAKENING IN DB BANDS                 ')
ISN 0309              IF(METMSK(3).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(IBEG(3),
                   *  SPINDB,'INDOOR SPEECH INTERFERENCE IN DB BANDS      ')
ISN 0311              IF(METMSK(4).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(IBEG(4),
                   *  SPEXDB,'OUTDOOR SPEECH INTEFERENCE IN DB BANDS      ')
ISN 0313              IF(METMSK(7).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(IBEG(7),
                   *  PDSPDB,'PEDESTRIAN SPEECH INTERFERENCE IN DB BANDS. ')
ISN 0315              IF(METMSK(5).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(0,
                   *  SEL1DB,'SEL PEXP IN DB BANDS.(PART 1)               ')
ISN 0317              IF(METMSK(5).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(10,
                   *  SEL2DB,'SEL PEXP IN DB BANDS.(PART 2)               ')
ISN 0319              IF(METMSK(6).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(0,
                   *  LEQ1DB,'LEQ PEXP IN DB BANDS.(PART 1)               ')
ISN 0321              IF(METMSK(6).EQ.1.AND.IPRINT(6).EQ.1) CALL DBBAND(10,
                   *  LEQ2DB,'LEQ PEXP IN DB BANDS.(PART 2)               ')
ISN 0323              IF(IPRINT(7).NE.1) GO TO 5950
ISN 0325                IF(METMSK(1).EQ.1) CALL EVNTDB(IBEG(1),
                   1      'SLEEP DISRUPTION,                 ',1)
ISN 0327                IF(METMSK(2).EQ.1) CALL EVNTDB(IBEG(2),
                   1      'SLEEP AWAKENING,                  ',2)
ISN 0329                IF(METMSK(3).EQ.1) CALL EVNTDB(IBEG(3),
                   1      'INDOOR SPEECH INTERFERENCE,       ',3)
ISN 0331                IF(METMSK(4).EQ.1) CALL EVNTDB(IBEG(4),
                   1      'OUTDOOR SPEECH INTERFERENCE,      ',4)
ISN 0333                IF(METMSK(7).EQ.1) CALL EVNTDB(IBEG(7),
                   1      'PEDESTRIAN SPEECH INTERFERENCE,   ',5)
                        C
                        C  WRITE METRICS INTO FILE 7 FOR PLOTS
                        C
C*******
ISN 0335      5950      ISUM = IPLOT(1) + IPLOT(2) + IPLOT(3) + IPLOT(4) +
                       *  IPLOT(5) + IPLOT(6) + IPLOT(7)
ISN 0336                IF(ISUM.EQ.0)        GOTO 6002
ISN 0338                WRITE(1,6004) NAME,IPLOT,NYRN,NYRNET
ISN 0339      6004      FORMAT(10X,'a',5A4,'  a'/10X,7I1/10X,12/4(10X,10(I4,'. ')/) )
```

```
      ISN 0340                DO 6005 IM=1,7
(030  ISN 0341       6005     WRITE(1,6003) (AVNMET(IYRM,3,I4),IYRM=1,NYRM)
 030)                          C
      ISN 0342       6003     FORMAT(56(10X,5(E10.3,1X)/))
C--------
      ISN 0343       6002  IF(IPRINT(5).EQ.1)  CALL  PRINT5
      ISN 0345             IF(ICUNT(1).EQ.1)   GO TO 6001
      ISN 0347                IF(IPRINT(10).EQ.1) CALL  PRNT10
C--------
      ISN 0349       6001  IF(IPRINT(11).EQ.1) CALL  PRNT11
                           C
      ISN 0351             STOP
                           C
                           C SECTION 80   DEBUG PACKETS
                           C
                           C         DEBUG SUBCHK
                           C       AT 13
                           C       TRACE ON
 032)                      C
      ISN 0352             END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =     351, PROGRAM SIZE =    16344, SUBPROGRAM NAME =TIMSTR

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  26K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS											
A	0003											
I	0003											
IT	0003											
JJ	0007	0008	0008	0008	0010	0010	0010	0010	0012	0012	0012	0012	0012
X2	0003											
ADT	0003											
ALO	0003											
CZD	0003											
DBK	0003											
MYR	0003											
NAT	0004											
NHT	0004											
NSR	0004											
NVT	0004											
PGF	0003	0008	0010	0012								
POP	0004											
VAF	0003											
VGF	0003											
VML	0003											
AREA	0003											
INCR	0004											
IVAP	0003											
IVBO	0003											
IVGF	0003											
JPGF	0003											
LANE	0003											
LIFE	0003											
MILE	0004											
MYRB	0004	0008	0010	0012								
MYRE	0003											
MYRN	0004											
NIOO	0004											
NLEV	0004											
NPMK	0003											
NYRN	0004											
PGFO	0003	0008	0010	0012								
PINC	0005	0005	0008	0010	0010	0012	0012	0012				
REMO	0003											
VINC	0003											
VPOP	0003											
VTOT	0004											
XINC	0003											
YEAR	0002	0006	0008	0008	0010	0010	0010	0012	0012			
YINC	0003											
ALREG	0004											
BVPOP	0003											
GVTOT	0004											
JMYLE	0003											
MYREF	0003											

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS
MYREG	0004
VBD74	0003
VBD77	0003
VBD85	0003
VBD90	0003
WIDTH	0003
FPAREA	0003
FPROAD	0003
IEGAGE	0003
MYRNET	0004
NPMILE	0003
POPDEN	0004
POPLTN	0004
STUPGF	0004
TOTPOP	0004
UPDATE	0002

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
200	0014	0007

/ STRUCTURED SOURCE LISTING /

```
C(002  ISN 0002            SUBROUTINE UPDATE(YEAR)
                           C BELONGS TO THE SINGLE EVENT MODEL
                           CX UPDATE  UPDATES THE POPULATION GROWTH FACTOR EACH YEAR
                           C
       ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
                     B1    2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
                     B1    3VML(14,4,5),A(2,3),DBK(3),CZD(9,6),PGF(5),
                     B1    4PGF0(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
                     B1    5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
                     B1    6X2(9,6,4),NPMILE(4,9),NPNK(4,9,6),ALO,IVAF(14),
                     B1    7MYREF(6),IVBD(14),LIFE(4),IEGAGE(6),JMYLE(9,4),
                     B1    8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
       ISN 0004            COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
                     B2    2POPDEN(4,9),POPLTN(4,9),STUPGF(9,9),TOTPOP(9),
                     B2    3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
                     B2    4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
       ISN 0005            REAL PINC(3,5) /0.138613E-1,0.1391304E-1,0.14122137E-1,
                          C0.11654135E-1,0.14814815E-1,0.14662757E-1,
                          C0.33707865E-2,0.32608696E-2,0.31578947E-2,
                          C0.34690799E-2,0.32069971E-2,0.32485876E-2,
                          C0.20631970E-1,0.18489985E-1,0.1716515E-1/
                           C
                           C PINC CONTAINS THREE SETS OF INTER-EXTRAPOLATORY DATA FOR THE
                           C   POPULATION OF THE U.S. BASED ON TABLE FIVE,PG.22, WYLE REPORT
                           C       WR77-13 (OCT. 1977)
                           C
       ISN 0006            INTEGER YEAR
                           C
       ISN 0007            DO 200 JJ=1,5
(001   ISN 0008            IF(YEAR.LE.1980)PGF(JJ)=PGF0(JJ)+PINC(1,JJ)*(YEAR-MYRB)
       ISN 0009            IF(YEAR.GT.1980.AND.YEAR.LE.1990)PGF(JJ)=PGF0(JJ)+
```

```
                    CPINC(1,JJ)*(1980-MYRB)+PINC(2,JJ)*(YEAR-1980)
     ISN 0012        1F(YEAR.GT.1990)PGF(JJ)=PGF0(JJ)+PINC(1,JJ)*(1980-MYRB)+
                    CPINC(2,JJ)*10.+PINC(3,JJ)*(YEAR-1990)
C-------
     ISN 0014   200  CONTINUE
 001)                C
     ISN 0015        RETURN
 002)                C
     ISN 0016        END

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT**OSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =     15, PROGRAM SIZE =      734, SUBPROGRAM NAME =UPDATE

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    116K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****FORTRAN CROSS REFERENCE LISTING*****

SYMBOL	INTERNAL	STATEMENT NUMBERS										
A	0003											
I	0002	0004	0004	0006	0008	0010	0010	0012	0012	0014	0014	0016
II	0003											
IT	0003											
X2	0003											
ADT	0003											
ALG	0003											
CZD	0003											
DBK	0003											
MYR	0003	0008	0010	0010	0010	0012	0012	0012	0014	0014	0014	0016
PGF	0003											
VAF	0003											
VBD	0002	0004	0008	0010	0012	0014	0016					
VGF	0003											
VML	0003											
AREA	0003											
IVAF	0003											
IVBD	0003											
IVGF	0003											
JPGF	0003											
LANE	0003											
LIFE	0003											
MYRE	0003											
NPMK	0003											
PGF0	0003											
REMD	0003											
VINC	0003	0010										
VPOP	0003											
XINC	0003	0012										
YINC	0003	0014										
BVPOP	0003											
JWYLE	0003											
MYREF	0003											
VBD74	0003	0004	0008	0010								
VBD77	0003	0012										
VBD85	0003	0014										
VBD90	0003	0016										
WIDTH	0003											
FPAREA	0003											
FPROAD	0003											
IEDAGE	0003											
NPMILE	0003											

/ STRUCTURED SOURCE LISTING /

```
0001  ISN 0002          FUNCTION VBD(I)                                    00062700
                        C BELONGS TO THE SINGLE EVENT MODEL
                        CT VBD(I)                    06/28/79 13:44:56     00062740
                        CX VBD COMPUTES THE CURRENT VEHICLE BREAKDOWN      00062760
```

```
      ISN 0003            COMMON /BIG001/ VAF(4,26),VGF(40,6),REMD(6,17),XINC(7),YINC(7),          00063100
                     B1   2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),                          00063110
                     B1   3VPL(14,4,5),A(2,5),DBH(5),CZD(9,6),PGF(5),                            00063120
                     B1   4PGFU(5),WIDTH(9,6),FPHOAD(9,6),ADT(6,9),                              00063130
                     B1   5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),                          00063140
                     B1   6X2(9,6,4),APMILE(4,9),NPHH(4,9,6),ALU,IVAF(14),                       00063150
                     B1   7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),                       00063160
                     B1   8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,II                         00063170
                          C                                                                      00063200
      ISN 0004            IF(I.GT.7)                    VBD = VBD74(I)                           00063300
      ISN 0006            IF(I.GT.7)                    RETURN                                   00063400
C--------
      ISN 0008            IF(MYR.LT.1974)               VBD = VBD74(I)                           00063440
      ISN 0010            IF(MYR.GE.1974.AND.MYR.LT.1977) VBD = VBD74(I)+VINC(I)*(MYR-1974)      00063500
      ISN 0012            IF(MYR.GE.1977.AND.MYR.LT.1985) VBD = VBD77(I)+XINC(I)*(MYR-1977)      00063600
      ISN 0014            IF(MYR.GE.1985.AND.MYR.LT.1990) VBD = VBD85(I)+YINC(I)*(MYR-1985)      00063700
      ISN 0016            IF(MYR.GE.1990)               VBD = VBD90(I)                           00063800
      ISN 0018            RETURN                                                                 00063900
                          C          DEBUG SUBCHK                                                00063910
001)                      C
      ISN 0019            END                                                                    00064000
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*SOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =      18, PROGRAM SIZE =      538, SUBPROGRAM NAME =   VBD

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  122K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

***** O P T R A N C R O S S R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL STATEMENT NUMBERS																	
A	0004																	
I	0004	0007	0009	0013	0015	0015	0015	0016	0019	0019	0024	0026	0028	0028	0028	0030	0030	0030	0030
	0033	0035	0037	0041	0042	0044	0045	0047	0051	0051	0051	0051	0051	0053	0053	0060	0061	0063	0064
	0068	0070	0070	0070	0070														
M	0043	0044	0045	0047	0051	0051	0051	0051	0053	0053									
IT	0004																		
XX	0019	0028	0030	0032	0033														
X2	0004																		
ADT	0004																		
ALO	0004																		
CZD	0004																		
DBK	0004																		
IYR	0008	0009	0018	0019	0024	0028	0033	0066	0068	0070	0070								
MYR	0004	0017	0018	0023	0028	0030	0030	0049	0051	0051	0051	0053	0053	0065	0066	0067			
NAT	0005																		
NMT	0005																		
NSA	0005																		
NVT	0005	0013	0041	0060															
PGF	0004																		
PGP	0005																		
VAF	0004	0028	0030	0070															
VBD	0028	0030																	
VGF	0004	0030																	
VML	0004	0047	0051	0051															
AREA	0004																		
IAGE	0023	0024	0024	0026	0028	0030	0067	0068	0068	0070	0070								
INCR	0005																		
IVAF	0004	0015	0026	0028	0030	0070	0070												
IVBD	0004	0015	0019	0024	0028	0030	0061	0063	0068	0070	0070								
IVGF	0004	0030																	
IYES	0033	0051																	
IYRN	0002	0011	0019	0021	0035	0037	0040	0058											
JPGF	0004																		
LANE	0004																		
LIFE	0004	0015	0026	0070															
MAXO	0015																		
MILE	0005																		
MYRB	0005	0028	0030	0030	0065	0067													
MYRE	0004	0015	0016	0042	0064														
MYRN	0005																		
NIOO	0005																		
NLEV	0005	0044																	
NPMK	0004																		
NYRN	0005																		
PGFO	0004																		
REMO	0004	0019	0028	0030	0070	0070													
VINC	0004																		
VPOP	0004	0009	0033	0051															
VTOT	0005	0037																	

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*****F O R T R A N C R O S S - R E F E R E N C E L I S T I N G *****

SYMBOL	INTERNAL STATEMENT NUMBERS								
XINC	0004								
YEAR	0006	0011	0015	0017	0023	0049			
YINC	0004								
ALMEG	0005								
BVPOP	0004	0035							
GVTOT	0005	0040							
IFLAG	0003	0003	0061	0063					
IYBAS	0030								
IYREF	0018	0030	0051	0066					
JMYLE	0004								
LEVEL	0046	0047	0050	0051	0051	0051	0051	0053	0053
MYOLD	0016	0017	0042	0049	0064	0065			
MYREF	0004	0015							
MYREG	0005	0045	0051	0051	0053	0053			
V6D74	0004	0019							
V6D77	0004								
V6D85	0004								
V6D90	0004								
VPSUM	0014	0032	0032	0035	0037	0038			
WIDTH	0004								
FPAREA	0004								
FPROAD	0004								
GVTSUM	0012	0038	0038	0040					
IEQAGE	0004	0024	0068						
MYRNET	0005	0011							
NLEVEL	0044	0045	0050						
NPMILE	0004								
POPDEN	0005								
POPLTN	0005								
STOPGF	0005								
TOTPOP	0005								
VEHPOP	0002								

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G *****

LABEL	DEFINED	REFERENCES		
1	0013			
2	0070			
54	0041			
2000	0010	0007	0008	
2101	0039	0013		
2102	0034	0017	0026	
2103	0032	0021		
2104	0023			
2200	0073	0060	0061	
2201	0072	0065		
5401	0057	0041	0043	
5402	0048	0046		
5403	0056	0049	0053	
5404	0055	0050		

/ STRUCTURED SOURCE LISTING /

```
(012  1BN 0002          SUBROUTINE VEHPOP(IYRN)
                        C BELONGS TO THE SINGLE EVENT MODEL
```

```
                      CT VEMPOP LAST UPDATE:      07/26/79 16:44:52
                      CX VEMPOP: COMPUTES THE VEHICLE POPULATION FROM REMO AND GROWTH AND
                      C                          ATTRITION FACTORS.
     ISN 0003         INTEGER IFLAG(6)/6*0/
     ISN 0004         COMMON /BIG001/ VAF(4,26),VGF(40,6),REMO(6,17),XINC(7),YINC(7),
               B1     2VINC(7),VBD74(14),VBD77(7),VBD85(7),VBD90(7),
               B1     3VMC(14,4,5),A(2,3),OBK(3),CZO(9,6),PGF(5),
               B1     4PGFO(5),WIDTH(9,6),FPROAD(9,6),ADT(6,9),
               B1     5AREA(4,9),FPAREA(9,4),VPOP(14,26),BVPOP(14),
               B1     6X2(9,6,4),NPMILE(4,9),NPMK(4,9,6),ALO,IVAF(14),
               B1     7MYREF(6),IVBD(14),LIFE(4),IEQAGE(6),JMYLE(9,4),
               B1     8JPGF(9),LANE(9,6),MYRE(14),IVGF(14),MYR,IT,I
                      C
                      C THE FOLLOWING COMMON BLOCKS SERVE PRINT SUBROUTINES
                      C
     ISN 0005         COMMON /BIG002/ ALREG(5,5,4,14),GVTOT(9),VTOT(14,9),POP(9),
               B2     2POPDEN(4,9),POPLTN(4,9),STOPGF(9,9),TOTPOP(9),
               B2     3MILE(6,9,4,5),MYREG(6,4,14),NLEV(14,4),MYRNET(9),
               B2     4NIDD(9),MYRN,INCR,MYRB,NYRN,NVT,NAT,NHT,NSR
                      C
     ISN 0006         INTEGER YEAR
                      C
     ISN 0007         DO 2000 I=1,14
011  ISN 0008         DO 2000 IYR=1,26
                      C
007  ISN 0009         VPOP(I,IYR) = 0.0
                      C
     ISN 0010    2000 CONTINUE
                      C
                      C
007)                  C
011)                  C
     ISN 0011         YEAR = MYRNET(IYRN)
     ISN 0012         GVTSUM =  0.0E0
                      C
     ISN 0013    1    DO 2101 I      = 1,NVT
                      C
010  ISN 0014         VPSUM =  0.0E0
     ISN 0015         MYRE(I) = MAX0(YEAR - LIFE(IVAF(I)) + 1,MYREF(IVBD(I)))
     ISN 0016         MYOLD = MYRE(I)
                      C
     ISN 0017         DO 2102 MYR  = MYOLD,YEAR
                      C
006  ISN 0018         IYR = IYREF(MYR)
     ISN 0019         IF(IYRN.EQ.1)   XX = REMO(IVBD(I),1YR) * VBD74(I)
     ISN 0021         IF(IYRN.EQ.1)   GOTO 2103
                      C
                      C  THE FOLLOWING IS THE MAIN PART OF THE SUBROUTINE
                      C
     ISN 0023    2104    IAGE = YEAR - MYR + 1
     ISN 0024            IF(IYR.EQ.1)IAGE = IAGE+IEQAGE(IVBD(I))
     ISN 0026            IF(IAGE.GT.LIFE(IVAF(I)))GO TO 2102
     ISN 0028            IF(MYR.LE.MYRB)   XX = REMO(IVBD(I),IYR) * VBD(I) *
                    *    VAF(IVAF(I),IAGE)
     ISN 0030            IF(MYR.GT.MYRB)   XX = REMO(IVBD(I),IYREF(MYRB)) * VBD(I)
                    *    * VAF(IVAF(I),IAGE) * VGF(IYBAS(MYR),IVGF(I))
                         C
```

```
                      C CONTINUE COMPUTATIONS GOTO DESTINATION FOR BASELINE YEAR
                      C
C--------
      ISN 0032  2103      VPSUM = VPSUM + XX
      ISN 0033            VPOP(I,IYES(IYR)) = XX
                          C
C--------
      ISN 0034  2102  CONTINUE
                      C
 006)                 C
      ISN 0035            IF(IYRN.EQ.1)    BVPOP(I) = VPSUM
      ISN 0037            VTOT(I,IYRN) = VPSUM
      ISN 0038            GVTSUM = GVTSUM + VPSUM
                          C
      ISN 0039  2101  CONTINUE
                      C
 010)                 C
      ISN 0040            GVTOT(IYRN) = GVTSUM
                          C
                      C SECTION 5.4   COMPUTE NUMBER OF CARS IN EACH NOISE RANGE
                      C
      ISN 0041    54  DO 5401 I       = 1,NVT
                      C
(009  ISN 0042            MYOLD=MYRE(I)
                          C
      ISN 0043            DO 5401 M       = 1,4
                          C
(005  ISN 0044            NLEVEL=NLEV(I,M)
      ISN 0045            MYREG(NLEVEL+1,M,I)=2014
                          C
      ISN 0046            DO 5402 LEVEL   = 1,5
(003  ISN 0047            VML(I,M,LEVEL)= 0.0E0
      ISN 0048  5402  CONTINUE
                          C
                      C SORT CARS INTO NOISE GROUPS ACCORDING TO THE REGULATION SCENARIO
                      C
 003)                 C
      ISN 0049            DO 5403 MYR   = MYOLD,YEAR
(002  ISN 0050            DO 5404 LEVEL   = 1,NLEVEL
                          C
(001  ISN 0051            IF(MYR.GE.MYREG(LEVEL,M,I).AND.MYR.LT.MYREG(LEVEL+1,M,I))
                         CVML(I,M,LEVEL) = VML(I,M,LEVEL)+VPOP(I,IYES(IYRFF(MYR)))
      ISN 0053            IF(MYR.GE.MYREG(LEVEL,M,I).AND.MYR.LT.MYREG(LEVEL+1,M,I))
                         CGO TO 5403
                          C
C--------
      ISN 0055  5404      CONTINUE
 001)                     C
C--------
      ISN 0056  5403  CONTINUE
                      C
 002)                 C
      ISN 0057  5401  CONTINUE
 005)                 C
 009)                 C
      ISN 0058            IF(IYRN.NE.1) RETURN
                          C
                      C SECTION 2.2  BACKGROUND VEHICLE POPULATION IN EACH VBD GROUP
```

C+217

```
                      C
   ISN 0060           DO 2200 I      = 1,NVT
                      C
18 ISN 0061           IF(IFLAG(IVBD(I)).EQ.1)GO TO 2200
   ISN 0062              IFLAG(IVBD(I))=1
                         C
                         C IF IFLAG =1, REMO HAS ALREADY BEEN BACKGROWN
                         C
   ISN 0064              MYOLD=MYRE(I)
                         C
   ISN 0065              DO 2201 MYR  = MYOLD,MYRB
                         C
 4 ISN 0066              IYR = IYREF(MYR)
   ISN 0067              IAGE = MYRB - MYR + 1
   ISN 0068              IF(IYR.EQ.1)IAGE = IAGE + IEQAGE(IVBD(I))
   ISN 007n      2       IF(IAGE.LE.LIFE(IVAF(I)))
                     C   REMO(IVBD(I),IYR) = REMO(IVBD(I),IYR)/VAF(IVAF(I),IAGE)
                         C
   ISN 0072      2201    CONTINUE
4)                       C
   ISN 0073      2200  CONTINUE
                       C
8)                     C
   ISN 0074            RETURN
                       C        DEBUG SUBCHK
2)                     C
   ISN 0075            END


TIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

TIONS IN EFFECT*NOSOURCE, EBCDIC, NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF, NOTERM FLAG(I)

ATISTICS*      SOURCE STATEMENTS =      74, PROGRAM SIZE =     2026, SUBPROGRAM NAME =VEHPOP

ATISTICS*  NO  DIAGNOSTICS GENERATED

*** END OF COMPILATION ******                                    106K BYTES OF CORE NOT USED
```

C.4 Plotting Modules

```
LEVEL 2.2 (SEPT 76)      LOWLIM          OS/360 FORTRAN H EXTENDED          DATE 80.273/19.50.58          PAGE   1

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                          *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
SYMBOL   INTERNAL STATEMENT NUMBERS
I        0003  0004
XINT     0002  0004
XLOW     0002  0004  0005
XMIN     0002  0005
LOWLIM   0002


                          *****F O R T R A N    C R O S S    R E F E R E N C E    L I S T I N G*****
 LABEL   DEFINED   REFERENCES
 1000    0007      0003


                                                / STRUCTURED SOURCE LISTING /
(002  ISN 0002            SUBROUTINE LOWLIM(XLOW,XINT,XMIN)
                          C GIVEN A SET OF INTERVALS AND A NUMBER, FIND THE LOWER LIMIT OF
                          C    THE INTERVAL WHICH CONTAINS THE NUMBER
      ISN 0003            DO 1000 I=1,21
(001  ISN 0004            XLOW=XINT*(21-I)
      ISN 0005            IF(XLOW.LE.XMIN)RETURN
      ISN 0007      1000  CONTINUE
 001)                     C
      ISN 0008            RETURN
 002)                     C
      ISN 0009            END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =       8, PROGRAM SIZE =      320, SUBPROGRAM NAME =LOWLIM

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    126K BYTES OF CORE NOT USED
```

```
REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
SYMBOL  INTERNAL STATEMENT NUMBERS
ISUM    0017  0018
IYRN    0005  0005  0006  0006  0006  0006  0008  0008  0008  0009  0009  0009  0010  0010  0010  0011  0011  0011  0012
        0012  0012  0013  0013  0013
NYRN    0002  0005  0005  0006  0008  0009  0010  0011  0012  0013  0015  0018
IPLOT   0003  0005  0015  0017  0017  0017  0017  0017  0017  0017  0020  0020  0022  0022  0024  0024  0026  0026  0028
        0028  0030  0030  0032  0032
RNAME   0002  0005  0015
LEQPXP  0003  0004  0012  0015  0032
MYRNET  0002  0004  0005  0015
PEDSPC  0003  0013  0015  0028
PPCLOS  0034
SELPXP  0003  0011  0015  0030
SLPANK  0003  0008  0015  0022
SLPDSP  0003  0006  0015  0020
SPCHIN  0003  0009  0015  0024
SPCOUT  0003  0010  0015  0026
SUBPLT  0020  0022  0024  0026  0028  0030  0032


                        *****F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G*****
LABEL   DEFINED   REFERENCES
1000    0014      0005
1001    0007      0006  0008  0009  0010  0011  0012  0013
1071    0016      0015


                                    / STRUCTURED SOURCE LISTING /
                          C  PROGRAM PLOTTER, USED FOR SINGLE EVENT MODEL
                          C PROGRAM TO PLOT LNP AND RCI METRICS
                          C
(001    ISN 0002          COMMON /PLOT01/ RNAME(6),MYRNET(40),NYRN
        ISN 0003          DIMENSION SLPDSP(40),SLPANK(40),SPCHIN(40),SPCOUT(40),
                         *PEDSPC(40),SELPXP(40),LEQPXP(40),IPLOT(7)
        ISN 0004          REAL LEQPXP,MYRNET
        ISN 0005          READ(5,1000)RNAME,IPLOT,NYRN,(MYRNET(IYRN),IYRN=1,NYRN)
        ISN 0006          READ (5,1001) (SLPDSP(IYRN),IYRN=1,NYRN)
        ISN 0007     1001 FORMAT (10X,E10.3,4E11.3)
        ISN 0008          READ(5,1001) (SLPANK(IYRN),IYRN=1,NYRN)
        ISN 0009          READ(5,1001) (SPCHIN(IYRN),IYRN=1,NYRN)
        ISN 0010          READ(5,1001) (SPCOUT(IYRN),IYRN=1,NYRN)
        ISN 0011          READ(5,1001) (SELPXP(IYRN),IYRN=1,NYRN)
        ISN 0012          READ(5,1001) (LEQPXP(IYRN),IYRN=1,NYRN)
        ISN 0013          READ(5,1001) (PEDSPC(IYRN),IYRN=1,NYRN)
        ISN 0014     1000 FORMAT(10X,6A4/10X,711/10X,I2/4(10X,10(F5.0,1X)/) )
        ISN 0015          WRITE(6,1071) RNAME,IPLOT,NYRN,MYRNET,SLPDSP,SLPANK,SPCHIN,
                         *SPCOUT,PEDSPC,SELPXP,LEQPXP
        ISN 0016     1071 FORMAT(10X,6A4/10X,711/10X,I2/4(10X,10(F5.0,1X)/)
                         */28(10X,10(E10.3,1X)/))
                          C
```

```
                      C
                      C CHECK IF PLOT IS POSSIBLE. IF YEARS<4, NO PLOTS
                      C
      ISN 0017        ISUM = IPLOT(1) + IPLOT(2) + IPLOT(3) + IPLOT(4) +
                     *IPLOT(5) + IPLOT(6) + IPLOT(7)
      ISN 0018        IF(NYRN.LE.3.OR.ISUM.EQ.0) RETURN
C--------
      ISN 0020           IF(IPLOT(1).NE.0) CALL SUBPLT(SLPDSP,IPLOT(1),
                     *   '$SLEEP DISRUPTION METRICS                    $')
      ISN 0022           IF(IPLOT(2).NE.0) CALL SUBPLT(SLPAWK,IPLOT(2),
                     *   '$SLEEP AWAKENING METRICS                     $')
      ISN 0024           IF(IPLOT(3).NE.0) CALL SUBPLT(SPCHIN,IPLOT(3),
                     *   '$INDOOR SPEECH INTERFERENCE METRICS          $')
      ISN 0026           IF(IPLOT(4).NE.0) CALL SUBPLT(SPCOUT,IPLOT(4),
                     *   '$OUTDOOR SPEECH INTERFERENCE METRICS         $')
      ISN 0028           IF(IPLOT(7).NE.0) CALL SUBPLT(PEDSPC,IPLOT(7),
                     *   '$PEDESTRIAN SPEECH INTERFERENCE METRICS      $')
      ISN 0030           IF(IPLOT(5).NE.0) CALL SUBPLT(SELPXP,IPLOT(5),
                     *   '$SEL PEXP                                    $')
      ISN 0032           IF(IPLOT(6).NE.0) CALL SUBPLT(LEQPXP,IPLOT(6),
                     *   '$LEQ PEXP                                    $')
                         C
                         C   END OF PLOT
                         C
      ISN 0034           CALL PP CLOS
      ISN 0035           RETURN
 001)                    C
      ISN 0036           END
```

```
*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =       35, PROGRAM SIZE =     2752, SUBPROGRAM NAME =  MAIN

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                  114K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS																	
N	0005	0008	0008	0009	0009	0009	0009	0009	0009	0009	0009	0010	0010	0010	0010	0010	0010	0010
	0013	0014	0015	0016	0017	0018	0021	0021	0028	0034	0040	0046	0052	0058	0064			
RCI	0003	0009	0010	0018	0064													
XUP	0030	0034	0036	0040	0042	0046	0048	0052	0053	0054	0058	0059	0060	0064				
ALWP	0003	0009	0010	0015	0046													
DLWP	0003	0009	0010	0017	0058													
PEXP	0003	0009	0010	0013	0034													
XLOW	0029	0030	0034	0035	0036	0040	0041	0042	0046	0047	0048	0052	0054	0058	0060	0064		
YEAR	0003	0009	0010	0028	0034	0040	0046	0052	0058	0064								
AMAX1	0017	0018																
AMIN1	0013	0014	0015	0016														
SPECS	0003	0023	0026	0027	0032	0033	0038	0039	0044	0045	0050	0051	0056	0057	0062	0063		
TOPOP	0003	0009	0010	0028														
DLPMAX	0004	0017	0017	0053														
DSPECS	0022	0024	0025															
EXPMIN	0004	0013	0013	0029														
GTITLE	0027	0033	0039	0045	0051	0057	0063											
LOWLIM	0029	0035	0041	0047														
LWPMIN	0002	0004	0015	0015	0041													
PPADVN	0031	0037	0043	0049	0055	0061												
PPCLOS	0065																	
PPPLOT	0028	0034	0040	0046	0052	0058	0064											
RCIMAX	0004	0018	0018	0059														
RELEXP	0003	0009	0010	0014	0040													
RELLWP	0003	0009	0010	0016	0052													
RLWMIN	0004	0016	0016	0047														
RNNAME	0003	0006	0010	0027	0033	0039	0045	0051	0057	0063								
RXPMIN	0004	0014	0014	0035														
SSPECS	0023	0026	0032	0038	0044	0050	0056	0062										
UPPLIM	0053	0059																

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
99	0007	0006
100	0011	0010
101	0008	0019
201	0012	0009
301	0020	0009

/ STRUCTURED SOURCE LISTING /

```
(002  ISN 0002          C PROGRAM TO PLOT NOISE IMPACT RESULTS
      ISN 0003          REAL LWPMIN
                        DIMENSION YEAR(50),TOPOP(50),PEXP(50),RELEXP(50),ALWP(50),
                       1RELLWP(50),DLWP(50),RCI(50), SPECS(30), RNNAME(5)
      ISN 0004          DATA EXPMIN,RXPMIN,LWPMIN,RLWMIN,DLWMAX,RCIMAX/4*1000.,2*-1000./
      ISN 0005          N=0
      ISN 0006          READ(5,99) RNNAME
```

```
      ISN 0007        99   FORMAT(1X,5A4)
(001  ISN 0008         101 N=N+1
      ISN 0009             READ(5,201,END=301) YEAR(N),TOPOP(N),PEXP(N),RELEXP(N),ALWP(N),
                          1RELLWP(N),DLWP(N),RCI(N)
      ISN 0010             WRITE(6,100)RUNNAME, YEAR(N),TOPOP(N),PEXP(N),RELEXP(N),ALWP(N),
                          2RELLWP(N),DLWP(N),RCI(N)
      ISN 0011        100 FORMAT(' PLOTTING DATA:'/20X,5A4/' ',F6.0,7F7.2)
      ISN 0012        201 FORMAT(F6.0,7F7.2)
      ISN 0013             EXPMIN = AMIN1( EXPMIN,PEXP(N))
      ISN 0014             RXPMIN = AMIN1( RXPMIN,RELEXP(N))
      ISN 0015             LWPMIN = AMIN1( LWPMIN,ALWP(N))
      ISN 0016             RLWMIN = AMIN1( RLWMIN,RELLWP(N))
      ISN 0017             DLWMAX = AMAX1( DLWMAX,DLWP(N))
      ISN 0018             RCIMAX = AMAX1( RCIMAX,RCI(N))
      ISN 0019             GO TO 101
 001)                      C
C--------
      ISN 0020        301 CONTINUE
      ISN 0021             N=N-1
      ISN 0022             CALL D SPECS ('ZONE1',0,4)
      ISN 0023             CALL SSPECS(SPECS)
      ISN 0024             CALL DSPECS('XSTART',9.8)
      ISN 0025             CALL DSPECS('YSTART',9.3)
      ISN 0026             CALL SSPECS(SPECS)
      ISN 0027             CALL GTITLE(RNNAME,SPECS)
      ISN 0028             CALL PP PLOT (YEAR,TOPOP,N,1974.,2014.,200.,325.,          '$TOTAL
                          1U.S. POPULATION (MILLIONS) VS YEARS'
                          2,'$$','$YEARS')
      ISN 0029             CALL LOWLIM(XLOW,10.,EXPMIN)
      ISN 0030             XUP=XLOW+100.
      ISN 0031             CALL PP ADVN
      ISN 0032             CALL SSPECS(SPECS)
      ISN 0033             CALL GTITLE(RNNAME,SPECS)
      ISN 0034             CALL PP PLOT (YEAR,PEXP,N,1974.,2014.,XLOW,XUP,
                          1'$POPULATION EXPOSED OVER LDN=55DB (MILLIONS) VS YEARS'
                          2,'$$','$YEARS')
      ISN 0035             CALL LOWLIM(XLOW,4.,RXPMIN)
      ISN 0036             XUP=XLOW+20.
      ISN 0037             CALL PP ADVN
      ISN 0038             CALL SSPECS(SPECS)
      ISN 0039             CALL GTITLE(RNNAME,SPECS)
      ISN 0040             CALL PP PLOT (YEAR,RELEXP,N,1974.,2014.,XLOW,XUP,
                          1'$PERCENT OF POPULATION EXPOSED OVER LDN=55DB (PERCENT) VS YEARS'
                          2,'$$','$YEARS')
      ISN 0041             CALL LOWLIM(XLOW,10.,LWPMIN)
      ISN 0042             XUP=XLOW+50.
      ISN 0043             CALL PP ADVN
      ISN 0044             CALL SSPECS(SPECS)
      ISN 0045             CALL GTITLE(RNNAME,SPECS)
      ISN 0046             CALL PP PLOT (YEAR,ALWP,N,1974.,2014.,XLOW,XUP,
                          1'$LEVEL WEIGHTED POPULATION (MILLIONS) VS YEARS'
                          2,'$$','$YEARS')
      ISN 0047             CALL LOWLIM(XLOW,2.,RLWMIN)
      ISN 0048             XUP=XLOW+10.
      ISN 0049             CALL PP ADVN
      ISN 0050             CALL SSPECS(SPECS)
      ISN 0051             CALL GTITLE(RNNAME,SPECS)
      ISN 0052             CALL PP PLOT (YEAR,RELLWP,N,1974.,2014.,XLOW,XUP,
```


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```
                    1'$NOISE IMPACT INDEX (PERCENT) VS YEARS',
                    2'$$','$YEARS')
     ISN 0053        CALL UPPLIM(XUP,10.,DLNMAX)
     ISN 0054        XLOW = XUP - 50.
     ISN 0055        CALL PP ADVN
     ISN 0056        CALL SSPECS(SPECS)
     ISN 0057        CALL GTITLE(RNNAME,SPECS)
     ISN 0058        CALL PP PLOT (YEAR,DLNP,N,1974.,2014.,XLOW,XUP,
                    1'$CHANGE IN LEVEL WEIGHTED POPULATION (MILLIONS) VS YEARS'
                    2,'$$','$YEARS')
     ISN 0059        CALL UPPLIM(XUP,24.,RCIMAX)
     ISN 0060        XLOW   = XUP - 120.
     ISN 0061        CALL PP ADVN
     ISN 0062        CALL SSPECS(SPECS)
     ISN 0063        CALL GTITLE(RNNAME,SPECS)
     ISN 0064        CALL PP PLOT (YEAR,RCI,N,1974.,2014.,XLOW,XUP,
                    1'$RELATIVE CHANGE IN LEVEL WEIGHTED POPULATION (PERCENT) VS YEARS'
                    2,'$$','$YEARS')
     ISN 0065        CALL PP CLOS
     ISN 0066        STOP
002)                 C
     ISN 0067        END

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*     SOURCE STATEMENTS =      66, PROGRAM SIZE =     4016, SUBPROGRAM NAME =  MAIN

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    110K BYTES OF CORE NOT USED
```

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

SYMBOL	INTERNAL STATEMENT NUMBERS									
RCI	0003	0013	0015	0019	0020	0050				
XLO	0024	0028	0040							
XUP	0025	0028	0040							
AINT	0022	0023	0026							
IYRN	0012	0013	0015	0015	0017	0018	0019	0020		
NYRN	0004	0012	0040	0050						
XLO1	0027	0028	0050							
XUP1	0026	0027	0028	0050						
AMAX1	0017	0019								
AMIN1	0018	0020								
ARRAY	0002	0003	0010	0013	0015	0015	0015	0017	0018	0040
POWER	0022	0023	0024	0025	0028					
RNAME	0004	0036	0046							
SPECS	0003	0030	0035	0036	0038	0039	0045	0046	0048	0049
TITLE	0002	0003	0040	0050						
XMINT	0023	0024	0025	0028						
ALOG10	0022									
DSPECS	0031	0032	0033	0034	0037	0044	0047			
GTITLE	0036	0039	0046	0049						
IPLOT1	0002	0010	0010	0042						
LWPMAX	0005	0006	0017	0017						
LWPMIN	0005	0007	0018	0018	0022	0023				
MYRNET	0004	0005	0040	0050						
PPADVN	0041	0051								
PPPLOT	0040	0050								
RCIMAX	0008	0019	0019	0026						
RCIMIN	0009	0020	0020							
SSPECS	0030	0035	0038	0045	0048					
SUBPLT	0002									

*****F O R T R A N C R O S S R E F E R E N C E L I S T I N G*****

LABEL	DEFINED	REFERENCES
1000	0021	0012
3001	0029	0028

(002 ISN 0002 / STRUCTURED SOURCE LISTING /

```
      SUBROUTINE SUBPLT(ARRAY,IPLOT1,TITLE)
      C
      C  FOR EACH METRIC TYPE GIVEN, PLOT THE METRIC AND THE RCI
      C
ISN 0003      DIMENSION ARRAY(40),RCI(40),TITLE(12),SPECS(30)
ISN 0004      COMMON /PLOT01/ RNAME(6),MYRNET(40),NYRN
ISN 0005      REAL LWPMAX,LWPMIN,MYRNET
      C
      C DERIVE THE RCI ARRAY, FIND MAXIMUM AND MINIMUM VALUES
      C
ISN 000       LWPMAX = -1.0 E 60
```

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```
      ISN 0007            LWPMIN = 1.0 E 60
      ISN 0008            RCIMAX = -1.0 E 60
      ISN 0009            RCIMIN = 1.0 E 60
                          C
      ISN 0010            IF(IPLOT1.EQ.1.OR.ARRAY(1).EQ.0.0) IPLOT1=0
                          C
      ISN 0012            DO 1000 IYRN=1,NYRN
                          C
(001  ISN 0013            IF(ARRAY(1).EQ.0.0) RCI(IYRN)=0.0
      ISN 0015            IF(ARRAY(1).NE.0.0) RCI(IYRN) =
                         *(1.- ARRAY(IYRN)/ARRAY(1)) * 100.
                          C
      ISN 0017            LWPMAX = AMAX1(LWPMAX,ARRAY(IYRN))
      ISN 0018            LWPMIN = AMIN1(LWPMIN,ARRAY(IYRN))
      ISN 0019            RCIMAX = AMAX1(RCIMAX,RCI(IYRN))
      ISN 0020            RCIMIN = AMIN1(RCIMIN,RCI(IYRN))
                          C
      ISN 0021      1000  CONTINUE
                          C
                          C NOW FIND THE UPLIM AND LOWLIM OF PLOT
                          C
001)                      C
      ISN 0022            POWER = 10. ** AINT(ALOG10(LWPMIN))
      ISN 0023            XMINT = AINT(LWPMIN / POWER)
      ISN 0024            XLO   = XMINT * POWER
      ISN 0025            XUP   = (XMINT + 10.) * POWER
      ISN 0026            XUP1  = 10. * AINT(RCIMAX / 10.0) + 10.
      ISN 0027            XLO1  =  XUP1 - 200.
      ISN 0028            WRITE(6,3001)  POWER,XMINT,XLO,XUP,XUP1,XLO1
      ISN 0029      3001  FORMAT(10X,6(E10.3,2X))
                          C
                          C
                          C     NOW CALL PLOT ROUTINES TO PLOT LWP AND RCI
                          C
      ISN 0030            CALL SSPECS(SPECS)
      ISN 0031            CALL DSPECS('ZONE',0.4)
      ISN 0032            CALL DSPECS('XDIV',8.0)
      ISN 0033            CALL DSPECS('YSTART',9.5)
      ISN 0034            CALL DSPECS('XSTART',10.0)
      ISN 0035            CALL SSPECS(SPECS)
      ISN 0036            CALL GTITLE(RNAME,SPECS)
      ISN 0037            CALL DSPECS('XSTART',8.0)
      ISN 0038            CALL SSPECS(SPECS)
      ISN 0039            CALL GTITLE('$  : LWP$',SPECS)
      ISN 0040            CALL PP PLOT(MYRNET,ARRAY,NYRN,1974.,2014.,XLO,XUP,
                         *TITLE,'$$','$YEARS$')
      ISN 0041            CALL PP ADVN
      ISN 0042            IF(IPLOT1.EQ.0)  RETURN
      ISN 0044            CALL DSPECS('XSTART',10.0)
      ISN 0045            CALL SSPECS(SPECS)
      ISN 0046            CALL GTITLE(RNAME,SPECS)
      ISN 0047            CALL DSPECS('XSTART',8.0)
      ISN 0048            CALL SSPECS(SPECS)
      ISN 0049            CALL GTITLE('$  : RCI$',SPECS)
      ISN 0050            CALL PP PLOT(MYRNET,RCI,NYRN,1974.,2014.,XLO1,XUP1,
                         *TITLE,'$$','$YEARS$')
      ISN 0051            CALL PP ADVN
      ISN 0052            RETURN
```

```
002)                C
     ISN 0053       END

*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)
*STATISTICS*     SOURCE STATEMENTS =      52, PROGRAM SIZE =     1754, SUBPROGRAM NAME =SUBPLT
*STATISTICS*  NO  DIAGNOSTICS GENERATED
****** END OF COMPILATION ******
                                                                118K BYTES OF CORE NOT USED
```

```
LEVEL 2.  (SEPT 76)          UPPLIM          OS/360  FORTRAN H EXTENDED          DATE 80.273/19.54.15          PAGE

REQUESTED OPTIONS: XREF,OPT(2),FORMAT,GOSTMT,NOSOURCE,NOTERMINAL,NOOBJECT

OPTIONS IN EFFECT: NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)
                   NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)


                              ******F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G******
SYMBOL   INTERNAL STATEMENT NUMBERS
I        0003  0004
XUP      0002  0004  0005
XINT     0002  0004
XMAX     0002  0005
UPPLIM   0002


                              ******F O R T R A N   C R O S S   R E F E R E N C E   L I S T I N G******
 LABEL   DEFINED   REFERENCES
 1000    0007      0003


                                                  / STRUCTURED SOURCE LISTING /
(002  ISN 0002            SUBROUTINE UPPLIM(XUP,XINT,XMAX)
      ISN 0003            DO 1000 I=1,21
(001  ISN 0004            XUP = XINT * (I-11)
      ISN 0005            IF(XUP.GE.XMAX) RETURN
      ISN 0007      1000  CONTINUE
 001)                     C
      ISN 0008            RETURN
 002)                     C
      ISN 0009            END


*OPTIONS IN EFFECT*NAME(MAIN) OPTIMIZE(2) LINECOUNT(60) SIZE(MAX) AUTODBL(NONE)

*OPTIONS IN EFFECT*NOSOURCE EBCDIC NOLIST NODECK NOOBJECT NOMAP FORMAT GOSTMT XREF NOALC NOANSF NOTERM FLAG(I)

*STATISTICS*      SOURCE STATEMENTS =        8, PROGRAM SIZE =       332, SUBPROGRAM NAME =UPPLIM

*STATISTICS*  NO  DIAGNOSTICS GENERATED

****** END OF COMPILATION ******                                    126K BYTES OF CORE NOT USED
```